WORKING PAPER

Working Paper No. 25

Growth of Madras Urban Agglomeratior

by

K. Nagaraj

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79, SECOND MAIN ROAD, GANDHINAGAR, ADYAR

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GROWTH OF MADRAS URBAN AGGLOMERATION*

I. Introduction and Outline

1. The problem

This paper is in the nature of an empirical study with the following broad objectives:

1. To study the pattern of growth of Madras Urban Agglomeration, i.e., of
   (a) Madras city and
   (b) Satellite towns around Madras city;

and 2. To see what preliminary results emerge regarding the extent and nature of migration, and the characteristics of migrants to Madras Urban Agglomeration, from an analysis of census data.

These two issues are sought to be studied almost solely with the help of Census population data; we have made very little use of the migration data provided by the Census. Given this, the 'results' or 'conclusions' on migration given in this paper are to be taken as broad tentative hypotheses; no more. These 'results' have to be tested out, so to say, on the basis of Census migration data, as well as from direct field level enquiries. We propose to take up this task in two further papers, one based on census migration data, and the other on a field survey conducted in Madras Urban Agglomeration.

2. Clarification of the terms used

So much for the broad objectives of the paper. Let us now clarify, in brief, some of the terms that we shall be

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using throughout the paper.

The Census data on urban areas are given for the core city, for the urban agglomeration, and for the standard urban area.

The concept of urban agglomeration was first used in the 1971 Census. The Census defined an urban agglomeration as "a continuous urban spread constituting town and its adjoining urban outgrowths or two or more physically contiguous towns together with continuous, well recognised urban outwrowths, if any, of such towns."[1]

The standard urban area, again a concept evolved in the 1971 Census is defined as "rural and urban areas contiguous to the towns and cities having population of 50,000 and more which have at present influence and interaction with the core town and also places which are likely to have such influence and inter-action with the core town....."[2] In other words, the standard urban area is "the projected growth area of a City or Town as it would be in 1991, taking into account not only the towns and villages which will get merged into it but also the intervening areas which are potentially urban...."[3,4]

Our concern in this paper is with the core city (i.e., Madras city) and the urban agglomeration (i.e., Madras urban agglomeration); we shall not deal with Madras standard urban area in this paper.

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1. Census of India (1971 a); p(x); emphasis added.
2. Ibid; p(x); emphasis added.
3. Census of India (1971 c) p2; emphasis added.
4. The Madras standard urban area as defined in the 1971 Census very closely corresponds to the Madras Metropolitan Area as delienated by the State Directorate of Town Planning.

3. Jurisdiction of Madras City and Madras Urban Agglomeration

A Major problem in studying the pattern of growth of Madras urban agglomeration has been that the jurisdiction of both the core city and the urban agglomeration has been changing from one census to another.

Madras City in 1871 had an area of nearly 27 square miles. During 1911-1921 this area increased to 29 square miles, and to 30 square miles between 1931 and 1941. During 1941-51 Saidapet Municipality and adjoining suburban areas (28 villages) in the south and west in Chingleput district were added to the city, increasing its area to 49 square miles. No further change took place between 1951 to 1961,[5] and also between 1961 and 1971. Again, between 1971 and 1981 (in 1978) the area of the city was increased to 67 square miles (172 square kms) by merging 10 satellite towns with the city.[6]

In the 1971 Census, Madras urban agglomeration was made up of 57 satellite towns around the core city. A list of these satellite towns is given in Annexure-1. In the 1981 Census, as just noted, 10 of these satellite towns were merged with the core city; two of the satellite towns were merged with two other satellite towns - Oragadam with Ambattur and Veeraraghavapuram with Thiruverkadu. And 3 townships - Kathivakkam, Nandambakkam and Maduravoyal -- were added to the urban agglomeration. In sum, in 1981 Census, Madras urban agglomeration had 48 satellite towns around the core city.

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5. See Census of India (1961 c); Chapter III.

6. These towns were: (a) Thiruvanmiyur (b) Velacheri (c) Kodambakkam (d) Virugambakkam (e) Saligramam (f) Koyambedu (g) Thirumangalam (h) Villivakkam (i) Erukancheri (j) Kodugaiyur. See Census of India (1981); p.14.

Apart from the changes noted above, the jurisdiction of Madras urban agglomeration also changed because of the change in area of many of the satellite towns themselves. This posed some problems in the analysis and we shall return to it later.

4. Availability of comparable data

With these frequent changes in the jurisdiction of the core city and of urban agglomeration, comparability of data between different Census poses some problems. We shall deal with most of these problems as and when they arise; here we shall just make a couple of broad observations on the data.

The 1961 Census gives the population of the core city, adjusted to its jurisdiction in 1961, for the sixty year period 1901-1961.[7] We have already noted that the jurisdiction of the city did not change between 1961 and 1971. From the 1981 provisional population tables it is not possible to get the population (provisional) of the city, adjusted to its 1971 jurisdiction, but we can get the population of the city in 1971 adjusted to its 1981 jurisdiction.[8] Thus, the 'area effect' in the growth of the core city can be eliminated for the period 1901-1981. But no such elimination of the 'area effect' could be carried out when it came to the estimation of migrants into the city for this period. This is because it is not clear whether the data given in the 1961 Census on registered births and deaths and estimated migrants in Madras City for the period 1901-1961 have been adjusted for the changes that have taken place in the jurisdiction of the city in this period. Hence the figures given in this paper on the extent of migration into the city should be considered as indicative of the 'broad trends' in migration over time, rather than as any precise estimates.[9]

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7. See Census of India (1961 e); p 4.
8. See Census of India (1981); p 14.
9. See next page.

We had noted that the Madras urban agglomeration had 57 satellite towns in 1971, and 48 in 1981. For the 10 satellite towns merged into the city in 1981 no population data--even provisional -- are available for 1981. It is only for the 48 satellite towns of the 1981 census that we have time series data going upto 1981. But even here, as we have already noted, there have been changes in the area of quite a number of satellite towns over time. But the 1971 Census gives the total population according to the 1951 and 1961 Censuses for each satellite town 'on the basis of the area of each unit in 1971, wherever data are available'.[10] Thus, the 'area effect' in the growth of these satellite towns can be eliminated for the period 1951-1971, while no such elimination is possible for the period 1971-81.

Let us end this introductory section with one caveat about the data: It is widely believed that the Census data for Tamil Nadu for the year 1961 were serious under-estimates.[11] There are no reasons to believe that Madras City or satellite towns around it are exceptions to this. This has its obvious implications for the results for the two decades 1951-61 and 1961-71. Often we have by-passed this problem by the simple expediency of neglecting the 1961 Census data, and using 1951-71 as one 'single block', as it were.

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9. There is another, and perhaps a more important reason why these figures should not be taken as any precise estimates: This is the generally poor quality of the data on registered births and deaths. A discussion on this is given in Census of India (1961 c); pp 47-48. This Census volume also notes that: "It is likely that the registration of the deaths in the city is more accurate than in other districts. The 1951 census report, however, recorded that in spite of defects in the existing scheme of registration of births and deaths, registered birth rates and death rates are sufficiently reliable for broad conclusions being drawn from them. (p 48).

10. Census of India (1971 c); p 2.

11. See, for example, Guhan (1981).

Apart from the present section giving an introduction to the paper, the rest of the paper has 7 sections: Section II deals with pattern of growth of Madras city and section III with that of satellite towns. Section IV deals with the extent of migration, mainly into the city, over time and section V with pattern and nature of this migration : These two sections, along with the previous ones dealing with the pattern of growth of city and satellite towns, try to see the role played by 'step migration' in the growth of the urban agglomeration. Section VI deals with the nature of migrants: Here we shall try to infer the occupational characteristics of the migrants basically with the help of census work-force data. Section VII is on the slum population in the city: We found that a study of slums in the city, and of the characteristics of the slum work-force, can be of use in inferring the occupational characteristics of a substantial proportion of the migrants. A few concluding observations are given in section VIII.

II. Growth of Madras City

The two broad questions that we attempt to answer in this section are:

1. The rate at which the population of Madras City as a whole has grown over time. The time span considered is 1901-1981.

2. The pattern of growth of the City -- i.e., the relative growth of different 'zones' within the city. We shall specify how these 'zones' are identified in a short while. The time span considered for this question is a rather short one, viz., 1961-71. For the period before 1961 lack of comparable data render it possible to make only broad, conjectural statements regarding the growth pattern of the city.

1. Growth of Madras City, 1901-1981

Table 1 gives comparable data on population of Madras city for the period 1901-1981. While the table is self-explanatory, let us just note the salient features regarding the growth of Madras city over this period.

The population of the city was almost stagnant during the first two decades of the century, and registered only moderate increases in the next two decades. In sharp contrast, there was a very rapid increase in population of the city during the 40s. The growth rate again appears to have slackened considerably in the 50s and after, although the three decades 1951-81 did register substantial increases in population; this was particularly true of the 60s.[12] Thus, the decade 1941-51 appears to be the 'watershed decade', so to say, in the growth of Madras city.

2. Pattern of growth of the City during 1961-1971

As already mentioned, the pattern of growth of the city, by which we mean the relative growth of different zones in the city, is studied only for the period 1961-71. Before we give the results on this it is necessary to say a few words on what we mean by 'zones' here, and also the method adopted by us in studying the relative growth of these 'zones'.

The 1961 Census divided the city into 100 divisions and the population data for the city were given in terms of these divisions. These 100 divisions were grouped into 4 broad zones 'depending on the domination of a particular activity in each zone, ...(and) keeping in mind geographical contiguity.'[13] These zones were:

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12. A substantial decrease in the growth rate during the 50s, and an equally substantial increase in it during the 60s, appear, at least in part, to be due to the possible undercount of population in the 1961 Census. The annual compoind growth rate of population of the city for the period 1951-71 is 2.82%. Thus, there certainly has been a perceptible decline in the growth rate of population after the 40s, although the population was certainty not stagnant during this period.
13. Census of India (1961 g); p 2.

I Zone : Manufacturing areas (or industrial zone)
II Zone : Trade and commerce areas (or commercial zone)
III Zone : Old residential areas
IV Zone : New residential areas

It is not clear what are the exact criteria adopted in demarcating these zones; but the Census did delineate the geographical boundaries of each. This is given in Annexure-2.

TABLE 1 : GROWTH OF MADRAS CITY, 1901-1981

Year	Area for which the population is given (km^2)	Population	Decadal variation in population (percentage)	Annual compound growth rate of population for the decade
1901	127 sq.km	552,899	--	--
1911	127	575,377	+4.07	0.40
1921	127	591,536	+2.81	0.28
1931	127	733,552	+24.01	2.18
1941	127	881,485	+20.17	1.85
1951	127	1,416,056	+60.64	4.85
1961	127	1,729,141	+22.11	2.02
1971	127	2,469,449	+42.81	3.63
1971	172	2,572,896	--	--
1981	172	3,266,034	+26.94	2.41

Source: 1. Census of India (1961 e); p 4
2. Census of India (1971 b)
3. Census of India (1981).

The question that we set to study was the following: How have these 4 zones, as delienated in the 1961 census, fared in terms of the growth rate of population, during the period 1961-71?

Given that the 100 divisions into which the city was divided in the 1961 Census were grouped into the 4 zones, this could be done if we know the population of each of these 100 divisions in 1961 and 1971.

But the 1971 Census divided the city into 120 divisions -- as against 100 in the 1961 Census.[14] Given that the overall area of the city remained constant between 1961 and 1971 this meant that the jurisdiction of at least some of the divisions (of 1961) had undergone changes (in 1971). In fact, this happened in the case of almost all the 100 divisions -- with the exceptions of Muthialpet and Ambedkar Nagar. In order to overcome this problem of changes in the jurisdiction of the divisions, we regrouped these divisions into 'clusters', such that the clusters in 1961 and 1971 approximately corresponded with each other with respect to their area. This was done with the help of the maps of the city given in the Censuses of 1961 and 1971. In short, each of the zones given in 1961 Census was divided into a number of 'clusters' (of divisions), each of these clusters having a corresponding cluster in 1971. The details on these 'clusters' are given in Annexure-3.

With this, we could study the relative growth rates of the 4 zones by computing the growth rates of the clusters for the period 1961-71. Wherever the difference between the area of a cluster in 1971 and 1971 was significant, we applied an 'area correction'; The growth rate for the cluster was calculated with the 1961 (actual) population and the 1971 'corrected' population, i.e., the population of the cluster if it had the 1961 area and the 1971 population density.

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14. The 1971 Census did not divide the city into different zones. And the 1981 Census has not yet given the data division-wise.

TABLE 2 : POPULATION GROWTH IN DIFFERENT ZONES OF MADRAS CITY, 1961-1971

Zones	Population in 1961	Population in 1971		Area in 1961 (sq.km)	Area in 1971 (sq.km)	Population density (persons / km^2)		Annual compound growth rate of population between 1961-71	
		actual	corrected			1961	1971	without correction	with correction
Manufacturing Zone	624153 (36.10)	940252 (38.08)	984606 (39.99)	39.07 (30.70)	37.31 (28.95)	15975	25201	4.18%	4.66%
Trade and Commerce zone	268801 (15.55)	283705 (11.49)	252481 (10.26)	9.38 (7.37)	10.54 (8.18)	28657	26917	0.54%	- 0.62%
Old Residential Zone	538357 (31.13)	664079 (26.89)	668840 (27.17)	26.69 (20.97)	26.50 (20.56)	20171	25060	2.12%	2.19%
New Residential Zone	297830 (17.22)	581413 (23.54)	555925 (22.58)	52.13 (40.96)	54.52 (42.31)	5713	10504	6.92%	6.44%
Madras City	1729141 (100.00)	2469449 (100.00)	2461852 (100.00)	127.27 (100.00)	128.87 (100.00)	13586	19162	3.63%	3.60%

Note: Figures in brackets give column percentages.

population density of this zone nearly doubled over the decade, it still remained the least dense zone even in 1971. Thus, in 1971, large parts of the city covering the 3 zones -- the Trade and Commerce Zone, the Old Residential Zone and the Manufacturing Zone -- had attained very high population densities. In fact, the 3 zones had comparable population densities and appear to have reached the 'saturation levels' by 1971. In sharp contrast, the fastest growing zone -- the New Residential Zone in the outer periphery of the town -- still remained a 'low density area' even by 1971, and hence, retained the potentialities for further growth.

This relationship between the growth rate and the base-year population density, which appears to be quite 'strong' when considered for the 4 zones in the city, gets considerably 'diluted' at a more disaggregated level. The results at a more disaggregated level, given in table 3, point to certain interesting conclusions.

It is clear that the 'filling in' process, with the less dense areas growing at a faster rate than the more dense ones, appears to have taken place to any appreciable degree only in the Manufacturing Zone. Given that this zone had a moderate population density to begin with, and has grown at a fast rate, this is not surprising. The association between base-year population density and the growth rate is much weaker in the case of the New Residential Zone : A low base-year population density appears to be responsible for this.

There is hardly any association between the base-year population density and the growth rate in the case of the Old Residential Zone. It may be recalled that this zone has grown at a very moderate rate of 2 per cent per annum, which can be taken as the 'natural rate' of increase in population. Thus there appears to be a minimal 'shift' in the population here -- either in terms of an inflow or an outflow. Given this it is not surprising that the association between base-year population density and the growth rate is almost zero.

TABLE 3 : ASSOCIATION BETWEEN POPULATION DENSITY IN 1961 AND ANNUAL GROWTH RATE OF POPULATION DURING 1961-1971

	Correlation coefficient between population density in 1961 and annual growth rate of population during 1961-71	Coefficient of variation of population density	
		in 1961	in 1971
1. For the 'clusters' within the manufacturing zone	- 0.70	71.00%	58.99%
2. For the 'clusters' within the Trade and Commerce Zone	+ 0.70	46.64%	53.02%
3. For the 'clusters' within the Old Residential Zone	- 0.08	55.62%	56.24%
4. For the 'clusters' within the New Residential Zone	- 0.47	59.62%	49.99%
5. For all the 'clusters' in Madras City	- 0.53	---	--
6. For the 4 zones in Madras city	- 0.98	46.85%	30.25

In the Trade and Commerce Zone, which has stagnated at best, or got depopulated at worst, the association between the base-year population density and the growth rate is positive, and not insignificant. The small number of 'observations' in the zone -- it has only 5 'clusters' -- obviously makes this result not all that reliable, but a

perusal of the data shows that the result is not entirely illusory: In fact, the 'cluster' in this zone which has got depopulated is the one with the least population density in 1961; and the cluster with the highest growth rate in the Zone is the one with the highest population density in 1961.[15] Thus, factors other than base-year population density must have been responsible for the movement of population out of this zone. As the 1961 Census noted: "Its highly favourable location close to the harbour and railway terminus encouraged more and more intense use of the area for commercial purposes and steady expansion thereby forcing the residents to move further and further outwards...."[16]

3. Pattern of growth of the city during 1951-61

The 1951 Census divided the city into 50 divisions, whereas the 1961 Census had 100 divisions for the city. Given that the area of the city had remained constant between 1951 and 1961, it is likely that most of the divisions had undergone substantial changes in area between the two Censuses, and this renders any meaningful comparison of population, division-wise, almost meaningless. For lack of data we have not been able to adopt the approach -- of grouping the divisions into 'clusters' -- that we adopted for the period 1961-71. All the same, the 1961 Census has given the population data for 1951 and 1961 for some of the divisions, with adjustments it appears, for the area changes between 1951 and 1961. The results, regarding the growth rates, for these divisions are given in table 4.

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15. The cluster consisting of Harbour, Kachaleeswarar, Adikeshavapuram, Chintadripet and Nehru Nagar had a population density of 15700 in 1961 and its annual growth rate was - 1.64; the cluster consisting of Mannady, Amman Koil(S) and Seven Wells(S) had a population density of 75,282 in 1961, and its annual growth rate was 1.91, the highest in the Zone.

16. Census of India (1961 g); p 13.

TABLE 4 : POPULATION OF SOME DIVISIONS IN MADRAS CITY

IN 1951 AND 1961

Divisions	Population (including houseless and institutional population) 1951	1961	Annual compound growth rate between 1951 and 1961	Annual compound growth rate between 1951 and 1961 of the 'cluster' of which the division is a part
Industrial Zone:				
1. New Washermanpet	32527	42220	2.64	8.45
2. Korukkupet	36965	57097	4.44	8.45
3. Sanjeevirayanpet	51434	56978	1.03	5.42
4. Vyasarpady	24806	45402	6.23	3.33
5. Perambur Barracks	29760	34500	1.49	8.48
Trade and Commerce Zone:				
1. Amman Koil	24923	24893	- 0.01	1.91
2. Muthialpet	26435	27700	0.47	0.58
3. Harbour	17638	19687	1.11	- 1.64
4. Kothwal Bazaar	19594	14263	- 3.13	0.06
Non Residential Zone:				
1. Guindy	18794	25652	3.16	3.44
MADRAS CITY	1416056	1729141	2.02	3.63

Source: Census of India (1961 c); p 56.

It is clear from the table that the stagnation -- or even depopulation -- of the Trade and Commerce Zone, appears to have set in even in the 50s, if not earlier.[17] The Industrial Zone, on the other hand, had started growing, albeit at a moderate rate, during the 50s. But a rapid growth of the zone appears to be a phenomenon which has set in only in the 60s. Nothing definitive can be said about the growth rates of the other two zones during the 50s.

4. Concluding observations:

Let us now summarise the major results on the growth of Madras city, and see what are the broad hypotheses, on movement of population to and from the city, that follow from these results.

Firstly, it appears that the growth of the city has not taken place at a uniform pace over the last 8 decades: There have been decades of stagnation (1901-1911 & 1911-1921),

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17. There are strong reasons to believe that this zone has been stagnating, in terms of its population, even in the decades prior to the 50s. According to the earlier Census data, quoted in Lewandowski (1980), Black Town (East) and Black Town (West), which together roughly correspond to the Trade and Commerce Zone of 1961, had a population of 151,000 in 1901 and accounted for 9.2 per cent of the area of the city. If we take the area of the city as 27 square miles (i.e., 69.12 square kms), the population density of this area works out to 23,745 persons/sq.km. in 1901. The population density of the Trade and Commerce Zone in 1961 was 28657 persons/km^2 which shows that over this entire period of 6 decades the population density of the zone has stagnated: In fact, this zone might have reached its saturation limit even by the turn of the century, and after that its population growth rate must have been of a pretty low order. On the other hand Vepery, Triplicane and Mylapore together had a population density of 7990 persons/km2 in 1901; the population density for the corresponding zone -- the Old Residential Zone -- in 1961 was 20,302 persons/km^2. So, between 1901 and 1961, the population of this zone must have increased substantially -- stagnation even in this zone setting in after the 60s.

there have been decades of moderate growth (1921-31; 1931-41; 1951-61 and 1971-81), and there have been decades of fast, rapid growth (1941-51 and 1961-71, especially the former). This indicates that migration into the city must have taken place in 'waves', so to say -- the largest stream of migrants perhaps coming in in the 40s. The 40s, as already noted, represent the 'watershed decade', so to say, in the growth of the city.

Secondly, different parts of the city have grown at different rates over time -- This appears to have happened at least after 1951, if not earlier. It appears that in the last 3 decades -- in the 50s and after -- the congested central parts of the city are either getting depopulated, or stagnating. On the other hand, the outer periphery of the city has been growing at a rapid rate -- at least in the 60s.

The observations above lead one to the following broad hypothesis: After the large influx of migrants into the city in the 40s, there appears to be a movement of population away from the congested central parts of the city. A part of this population might have moved to the periphery of the city, which, perhaps, has also received fresh streams of migrants from elsewhere.

III. Growth of Satellite Towns

In our previous section we had talked about the possibility of movement of population from the central parts of the city to its periphery. Now, there is no reason to assume that the population that has left the central parts of the city gets settled, necessarily, in its periphery, within the city limits, and does not cross over to the satellite towns around the city. Such 'reverse migration' from the city to the satellite towns is a distinct possibility. Apart from this stream of 'reverse migrants', these satellite towns might have also received

other streams of migrants resulting in their rapid growth. A study of these streams of migrants -- of their extent as well as nature -- requires a study of the growth pattern of these towns over time. This is what we set out to do in this section.

As in the previous section with respect to Madras city, the two broad questions that we attempt to answer in this section are:

1. The rate at which the population of the satellite towns as a whole has grown over time. The time span considered is 1951-1981.
2. The pattern of growth of satellite towns -- i.e., the relative growth of different 'types' of satellite towns. What we mean by different 'types' of towns will be clarified later. The time span considered for this question is also 1951-1981.

1. Growth of satellite towns: 1951-81

Table 5 gives the broad trends in the growth of satellite towns for the period 1951-1981.

It is clear from the table that the satellite towns have grown faster than Madras city during the period 1951-81 and this is particularly true of the 60s and the 70s. Moreover, in terms of the 'potential' for future growth, the satellite towns certainly appear to have an advantage: They are much more sparsely populated than the city. Thus, even in 1971, these towns had a population density which was nearly 1/6th of the population density of the most sparsely populated zone in the city, viz., the New Residential Zone -- In 1971, while the satellite towns accounted for nearly 76 per cent of the area of Madras urban agglomeration, they accounted for only about 22 per cent of its population.

TABLE 5 : GROWTH OF MADRAS URBAN AGGLOMERATION, 1951-1981

	Population in				Annual compound growth rate for the decade			denisty of population (persons/km²)			
	1951	1961	1971	1981	1951-61	1961-71	1971-81	1951	1961	1971	1981
Madras City (with 1971 jurisdiction)	1416056 (82.72)	1729141 (81.99)	2469449 (77.90)	N.A.	2.02	3.63	N.A.	11126	13586	19162	N.A.
Satellite Towns of 1971	295835 (17.28)	379724 (18.01)	700481 (22.10)	N.A.	2.53	6.31	N.A.	733	941	1736	N.A.
Total for Madras urban Agglomeration (with 1971 Jurisdiction)	1711891 (100.00)	2108865 (100.00)	3169930 (100.00)	N.A.	2.11	4.16	N.A.	3225	3973	5972	N.A.
Madras city (with 1981 Jurisdiction)	1451659 (84.44)	1772004 (83.61)	25722967 (80.55)	3266034 (76.37)	2.01	3.80	2.41	8440	10302	14959	18989
Satellite Towns of 1981 (48 in number)	267563 (15.56)	347472 (16.39)	621117 (19.45)	1010601 (23.63)	2.65	5.98	4.99	710	921	1647	2680
Total for Madras Urban Agglomeration (with 1981 Jurisdiction)	1719222 (100.00)	2119476 (100.00)	3194084 (100.00)	4276635 (100.00)	2.12	4.19	2.96	3131	3860	5817	7788

Given that large parts of the city appear to be 'saturated' in terms of population density, one would expect that these satellite towns -- along with some sparsely populated areas in the city, like the New Residential Zone -- would be the areas where growth would be concentrated in future.

2. Pattern of growth of satellite towns

Is the phenomenon of rapid growth -- especially during the 60s and the 70s -- common to all the satellite towns, or only to some among them while others have stagnated? Or, is there any pattern discernible in the growth of satellite towns with different 'types' of towns growing at different rates? An answer to these questions would depend on how we classify the towns into different 'types'. There are two standard ways of doing it, both being adopted in the Censuses: First, to divide them into 6 'classes' of towns, depending on their population. Second, to divide them 'functionally', on the basis of the composition of their work-force. Let us consider these two classification separately.

2.1. Pattern of growth of different classes of towns

The Census divides the towns into the following 6 classes' on the basis of their population:

Class I : with population 100,000 and above
Class II : with population 50,000 - 99,999
Class III : with population 20,000 - 49,999
Class IV : with population 10,000 - 19,999
Class V : with population 5,000 - 9,999
Class VI : with population less than 5,000.

The 48 satellite towns of 1981 were divided into 6 classes on the above basis, and the growth rate of population

for each class was worked out for the period 1951-1981.[18] The results are given in table 6.

It is clear from the table that the big towns -- i.e., the class I and class II towns - have been growing at a fast rate during the period 1951-81. It appears that after a period of moderate growth during the 50s, these towns grew at a very rapid rate during the 60s, and there appears to be a perceptible decline in the growth rate during the 70s, eventhough the rate even during this period was high. If we take 1951-71 as a 'block' in order to take the 1961 population undercount into account, it appears that the decline in the growth rate during 70s is hardly significant.

On the other hand, the 'small towns', which were growing, if at all, at a very slow pace during the initial period of 1951-61, appear to have picked up during the 60s and 70s, eventhough their growth rates are appreciably less than the growth rates of the bigger towns even during 60s: they appear to have caught up with the big towns, in terms of growth rates, only in the 70s.

As to the relative importance of different classes of towns, it may be noted that although the big towns are few in number -- accounting for only 6 out of 48 towns --, they account for slightly more than one-third of the total area of the satellite towns, and more than half of the total population. The small towns, although more in number -- accounting for 42 out of 48 towns -- account for only two-thirds of the area, and less than half of the population of the satellite towns.

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18. It may be noted that the method we have adopted here is the 'continuous method' rather than the 'instantaneous method'. In the instantaneous method one compares the population in any size-class at the beginning and at the end of the decade, without taking into consideration whether one is comparing the same set of urban units over time. In the continuous method the same set of urban units belonging to a particular size-class in a particular census year are compared over time for calculating the growth rate. For a discussion on the methods, see Kurien (1971) and also Suri (1968).

TABLE 6 : GROWTH OF SATELLITE TOWNS BELONGING TO DIFFERENT CLASSES, 1951-1981

Class	Number of towns in the class (in 1981)	Population				Annual compound growth rate of population				Area in 1971 (in sq.kms)
		1951	1961	1971	1981	1951-61	1961-71	1951-71	1971-81	
Class I	3 (6.25)	70986 (26.79)	98270 (28.47)	212895 (34.56)	373556 (37.20)	3.31	8.04	5.65	5.78	85.84 (23.00)
Class II	3 (6.25)	62166 (23.46)	98718 (28.60)	175218 (28.45)	267014 (26.59)	4.73	5.91	5.31	4.30	47.45 (12.71)
Big Towns (Class I + Class II)	6 (12.50)	133152 (50.26)	196988 (57.07)	388113 (63.01)	640570 (63.79)	3.99	7.02	5.49	5.14	133.29 (35.71)
Class III	5 (10.42)	53648 (20.25)	52497 (15.21)	92465 (15.01)	156195 (15.55)	-0.22	5.82	2.76	5.38	43.72 (11.71)
Class IV	7 (14.58)	35412 (13.37)	44223 (12.81)	60118 (9.76)	95360 (9.50)	2.25	3.12	2.68	4.72	61.52 (16.48)
Class V	8 (16.67)	19051 (7.19)	21513 (6.23)	35911 (5.83)	56771 (5.65)	1.22	5.26	3.22	4.69	35.83 (9.60)
Class VI	22* (45.83)	23677 (8.94)	29966 (8.68)	39365 (6.39)	55301 (5.51)	2.38	2.77	2.57	3.46	98.91 (26.50)
Small Towns (Class III - Class VI)	42* (87.50)	131788 (49.74)	148199 (42.93)	227859 (36.99)	363627 (36.21)	1.18	4.40	2.78	4.78	239.98 (64.29)
All Towns	48* (100.00)	264940 (100.00)	345187 (100.00)	615972 (100.00)	1004197 (100.00)	2.65	5.98	4.31	4.99	373.27 (100.00)

*The figures for population refers to only 20 of Class VI towns; for lack of data Soranjeri and Sennirkuppam have been left out.

Moreover, the relative importance of the big towns in terms of the share of total population is on the increase over time. This is particularly true of class I towns. The share of class II towns, after registering a substantial increase in the 50s, remained constant in the 60s and even declined, although by a small amount, in the 70s. This appears to be the reason why this share remained constant during the 70s for the big towns as a whole. The share of small towns in the total population, on the other hand, has been steadily declining over time. This is particularly true of the 'smaller towns' -- those belonging to class IV, V and VI. The class III towns, after registering an appreciable decline in their share in the 50s, have more or less maintained their share after that.

Now, if the towns belonging to different classes have shown different patterns of growth over time, what is this pattern related to? In more specific terms, is the growth rate dependent on the base-year population density, with the low-dense towns growing faster than the high-dense ones? Table 7 attempts to answer this question.

As an aside it is interesting to note that class II towns (i.e, Alandur, Tambaram and Pallavapuram) -- and not the class I towns -- have the highest population density among all the classes, and they have retained this position over time.[19] The class I towns -- Thiruvottiyur, Avadi and Ambattur -- in fact had a lower population density than even the class III towns upto 1961.

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19. It may be worthwhile noting here that many of the satellite towns underwent significant changes in area over time. This was particularly true of class I and class II towns. But as already noted, the 1971 Census gave population data for these towns 'on the basis of the area of each unit in 1971'. (See p 5). Anyhow, we have assumed that the area of these towns remained unchanged between 1971 and 1981. The 1981 Census has not yet provided the area figures for these towns.

TABLE 7 : DENSITY OF POPULATION OF SATELLITE TOWNS BELONGING TO DIFFERENT CLASSES

(persons/km^2)

Year	Class I	Class II	Big Towns	Class III	Class IV	Class V	Class* VI	Small* Towns	All* Towns	Correlation coefficient between base-year density and population growth rates (for the decade ending) for all towns*
1951	827	1310	999	1227	576	532	239	549	710	--
1961	1145	2080	1478	1201	719	600	303	618	925	- 0.31
1971	2480	3693	2912	2115	977	1002	398	949	1650	+ 0.12
1981	4352	5627	4806	3573	1550	1584	559	1515	2690	- 0.13

*Two towns, Soranjeri and Sennirkuppam have been left out.

Coming to the question of the relationship between the base-year population density and the growth rate, it appears from the table that the 'process of filling in' is not at work in the satellite towns. The correlation coefficients between the growth rates of satellite towns and their base-year population densities are not significantly different from zero, indicating that the towns with lower density have not, in general, grown faster than the towns with higher population density.

If the base-year population density has not been a significant factor in determining the growth pattern of population of satellite towns, what is it related to? Can we relate it to the 'nature' of the town -- i.e., whether the town is an 'industrial town' or a 'service town', etc? This is the question we take up below.

2.2. Pattern of growth of satellite towns on the basis of their functional classification

The 1971 Census divides towns broadly into mono-functional, bi-functional and multi-functional towns 'based on the percentage of workers in broad types of economic activities'. The mono-functional towns, i.e., 'towns having only one predominant function' are grouped into 5 broad functional categories:

i) Primary Activities (cultivation and allied activities)
ii) Industry (Manufacturing, construction and allied activities)
iii) Trade and Commerce
iv) Transport
and v) Services.

A bi-functional town has two predominant functional categories and a multi-functional town, more than two.

We grouped the 48 satellite towns into different functional categories on the basis of 1971 Census data[20] and studied the pattern of growth of each category of towns from 1951 onwards. The results are summarised in Table 8.

It is clear from the table that the industry towns, the bi-functional towns -- as well as those towns which were designated as rural areas upto 1971 -- have grown at a fast rate over time. Of these the industry towns have maintained the record of fast growth all through the period under consideration: Their growth rates have been consistently higher than the average growth rates for all satellite towns. This is also clear from the fact that the population residing in these towns as a proportion of total population of the satellite towns has been consistently increasing from 1951 to 1981.

The service towns and the primary activity towns, on the other hand, have been growing at a low rate all through, although the primary activity towns appear to have picked up during the period 1971-81.

The fact that comes out strikingly from the above table is that industrialisation happens to provide the major impetus for the growth of a satellite town. This is an issue we shall return to later.

2.3. Classification of satellite towns according to growth performance

So far we have divided the satellite towns into different 'types', either class-wise (i.e., on the basis of size of population) or function-wise, and then studied the growth performance of these different 'types' of towns over time. The problem can also be approached from the other end, as it were: That is, we can divide the satellite towns into different types on the basis of their growth performance over time and

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20. The 1981 Census has not yet provided any information on functional categories of towns.

8 : PATTERN OF GROWTH OF SATELLITE TOWNS BELONGING TO DIFFERENT FUNCTIONAL CATEGORIES

Functional category (in 1971)	Number (in 1971)	Population in				Annual compound growth rate of population				Area (km^2) (in 1971)	Population density (persons/km^2)			
		1951	1961	1971	1981	1951-61	1961-71	1951-71	1971-81		1951	1961	1971	1981
Industry	13	122630 (46.29)	163219 (47.28)	322726 (52.39)	551733 (54.94)	2.90	7.05	4.96	5.51	144.42 (38.69)	849	1130	2235	3820
Services	2	15889 (6.00)	19130 (5.54)	27599 (4.48)	35620 (3.55)	1.87	3.73	2.80	2.58	16.77 (4.49)	947	1141	1648	2124
Primary Activities	16	27391 (10.34)	33382 (9.67)	43543 (7.07)	66875 (6.66)	2.00	2.69	2.34	4.38	89.59 (24.00)	306	373	486	746
Bi-functional	9	63694 (24.04)	98066 (28.41)	168574 (27.37)	270724 (26.96)	4.40	5.57	4.99	4.85	81.62 (21.87)	780	1201	2065	3317
Multi-functional	3	28005 (10.57)	20779 (6.02)	29376 (4.77)	42112 (4.19)	-2.94	3.52	0.24	3.67	26.78 (7.17)	1046	776	1097	1573
Rural Areas (in 1971)	3	7331 (2.77)	10611 (3.07)	24154 (3.92)	37133 (3.70)	3.77	8.57	6.14	4.39	14.09 (3.77)	520	753	1714	2635
All towns*	46	264940 (100.00)	345187 (100.00)	615972 (100.00)	1004197 (100.00)	2.65	5.98	4.31	4.99	373.27 (100.00)	710	925	1650	2690

*Sennirkuppam and Soranjeri have been left out.

then study the characteristics of each type. This is what we set out to do now

The satellite towns can be broadly divided into 3 groups on the basis of their growth performance over time:

a) The fast-growing towns: That is, towns which have kept up a high growth rate over time;

b) The stagnant towns: That is, towns which have been stagnant all through the period under consideration.

and c) The 'late-starters' : That is, towns which were stagnant in the initial period but started growing fast later.

Table 9 gives the satellite towns belonging to these 3 groups as well as the growth performance of each type over time. The table is self explanatory.

What are the characteristics of the towns belonging to these 3 types of towns? Table 10 and Table 11 provide some answers to this question.

Table 10 shows that while all big towns -- i.e., Class I and Class II towns - are fast-growing towns, the converse is not true: In fact, of the 14 fast growing towns as many as 9 are 'small towns'. On the other hand all stagnant towns and 'late-starters' are small towns. In fact, 13 out of 21 stagnant towns belong to the smallest size class, i.e., Class VI towns with a population of less than 5,000 each. And this class accounts for 4 out of 10 late-starters,

As to the location of different types of towns
the fast-growing towns are situated along the two major transport corridors in the urban agglomeration -- viz., along the GST Road and the Poonamallee High Road. Some of the 'late-starters' are situated along the third major transport corridor -- viz., the Ennore-Erunkancheri High Road in the north; and some other 'late-starters'

SATELLITE TOWNS GROUPED ACCORDING TO GROWTH PERFORMANCE

Group	Towns	Number of towns	Population 1951	Population 1961	Population 1971	Population 1981	Annual growth rate of population 1951-61	1961-71	1951-71	1971-81
Fast-growing towns	Thiruvattiyur; Avadi; Ambattur; Alandur; Tambaram; Pallavapuram; Kathivakkam; Anakaputhur; Naravarikuppam; Chithalpakkam; Perungalathur; Peerkankaranai; Kathirvedu; Thirusulam; Perungudi.	15	150203 (56.69)	223363 (64.71)	443598 (72.02)	725868 (72.28)	4.05	7.10	5.56	5.05
Stagnant towns	Nerkundram; Nazerathpettai; Varadharajapuram; Vengavasal; St. Thomas Mount -cum-Pallavaram; Maduravoyal; Meenambakkam; Kattupakkam; Sembarambakkam; Kannapalayam; Melmanambedu; Sadayanakuppam; Kunrathur; Thirumazhisai; Vallanur; Mudichur; Poovirundhavali; Thiruninravur; Polal; Mathur; Nemilicheri.	21	88227 (33.30)	91783 (26.59)	122263 (19.85)	150723 (15.01)	0.40	2.91	1.64	2.11
Late-starters	Madhavaram; Pammal; Tiruverkadu; Thiruneermalai; Nandambakkam; Polichalur; Pallikaranai; Kothivakkam; Nadukuthagai; Madipakkam	10	26510 (10.01)	30041 (8.70)	50111 (8.14)	127606 (12.71)	1.26	5.25	3.23	9.80
All Towns	--	46	264940 (100.00)	345187 (100.00)	615972 (100.00)	1004197 (100.00)	2.68	5.96	4.31	5.01

Two towns, Sennirkuppam and Soranjeri, have been left out.

TABLE 10 : CLASS-WISE DISTRIBUTION OF TOWNS GROUPED ACCORDING TO GROWTH PERFORMANCE

Group	Total number of towns	Class wise distribution of towns (according to 1981 Census)								Number of towns belonging to		Avg. Dist. from Madras (kms)
		Class I	Class II	Big Towns	Class III	Class IV	Class V	Class VI	Small Towns	Saidapet Taluk	Sriperumbudur Taluk	
Fast-growing Towns	15	3	3	6	1	3	2	3	9	14	1	20.71
Stagnant Towns	21	Nil	Nil	Nil	2	3	3	13	21	10	11	23.86
Late-starters	10	Nil	Nil	Nil	2	1	3	4	10	7	3	24.30
All Towns	46	3	3	6	5	7	8	20	40	31	15	--

TABLE 11 FUNCTION-WISE DISTRIBUTION OF TOWNS GROUPED ACCORDING TO GROWTH PERFORMANCE

Functional category	Fast-growing towns			Stagnant towns			Late-starters			All Towns		
	1951	1961	1971	1951	1961	1971	1951	1961	1971	1951	1961	1971
Industry	NA	5	8	NA	2	3	NA	Nil	2	NA	7	13
Services	NA	2	Nil	NA	2	1	NA	Nil	1	NA	4	2
Primary activities	NA	Nil	Nil	NA	Nil	12	NA	Nil	4	NA	Nil	16
Bi-functional	NA	1	5	NA	Nil	2	NA	Nil	2	NA	1	9
Multi-functional	NA	Nil	1	NA	1	2	NA	Nil	Nil	NA	1	3
Rural Areas	11	7	1	18	16	1	10	10	1	39	33	3
Urban Areas	4	8	14	3	5	20	Nil	Nil	9	7	13	43
Total	15	15	15	21	21	21	10	10	10	46	46	46

NA : Not available

appear to be situated near one or other fast-growing town. The stagnant towns, on the other hand, are situated away from the transport corridors -- most of them are situated in an area in between GST Road and Poonamallee High Road. As to the average distance of these 3 types of towns from Madras city, the fast growing ones are slightly nearer to the city than the other two types are; but between stagnant towns and late-starters there is hardly any difference in this regard. It is also interesting to note that all except one of the fast growing towns are in Saidapet taluk and so also 7 out of 10 of the late-starters. The stagnant towns, on the other hand, are almost evenly distributed between two taluks -- 10 in Saidapet and 11 in Sriperambudur. Looking at it slightly differently, of the 15 towns in Sriperambudur taluk (of Chingleput district) which fall within the Madras Urban Agglomeration, as many as 11 are stagnant towns; on the other hand, nearly half of the towns in Saidapet taluk (and falling within Madras Urban Agglomeration) are the fast growing ones.

Coming to the functional characteristics of these 3 types of towns the following points emerge from table 11: First, it is clear that industrialisation happens to provide the major impetus for fast growth in the case of satellite towns. Of the 15 fast growing towns, 5 were industrial towns in 1961 and this number increased to 8 in 1971. Even the five bi-functional towns (in1971) among the fast growing ones had a 'component' of industry: 2 of them were 'industry-cum-service' towns, and the other three were 'industry-cum-trade and commerce', 'industry-cum-transport' and 'services-cum-industry', respectively.[21]

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21. The fact that industrialisation happens to provide the major impetus for growth in the case of satellite towns is not unrelated to the fact that almost all of the fast growing satellite towns are situated in Saidapet taluk. The 1961 Census clearly shows that Saidapet taluk had a clear head-start, as compared to Sriperumbudur or any other taluk in Chengleput district in terms of 'important manufacturing urban industries which engage large number of urban workers'. See Census of India (1961a), table 5, p.22. Sriperumbudur taluk, on the other hand, had very little of manufacturing urban industries, although it had a fair share of 'important manufacturing rural industries...'. See, Ibid, table 3, p.20.

The other point that comes out clearly is that the primary-activity towns account for a large number of stagnant towns, and also for a substantial proportion of 'late-starters'.

3. Concluding observations

Two points emerge from our discussions so far: One, the satellite towns have been growing at a much faster rate than the core city, for the period under consideration. This, coupled with the fact that the central parts of the core city have been getting depopulated and there has been a movement 'outwards' in the period under consideration, points to a distinct possibility of a 'reverse migration' from the core city to satellite towns.

The second point that comes out clearly is the role played by industrialisation in the growth of satellite towns: Towns which have got industrialised have grown at a fast rate, whereas those towns where industrialisation has not taken place have stagnated. This indicates that the stream of migrants into these towns -- the fast growing ones -- must be made up of industrial workers to a large degree.

So far we have discussed certain questions relating to the growth of the core city and the satellite towns, and these questions have lead us to some broad tentative hypotheses on issues relating to migration into the urban agglomeration. In the remainder of this paper we shall be basically concerned with these issues relating to migration. These issues can be broadly grouped as

1. Extent of migration
2. Pattern and nature of migration

and 3. Characteristics of migrants.

IV EXTENT OF MIGRATION

At the very outset it has to be clarified that the figures given on the extent of migration in this section are 'estimates' based on the census population data, and hence, provide only rough orders of magnitude indicating broad trends, rather than providing any precise estimates as such. We had already make a reference to this point earlier (see p. 4). It may also be noted here that for lack of data on registered deaths and births, these 'estimates' are not provided for the satellite towns. For these towns data on extent of migration, available as census migration data, will be given in one of the papers following this. Here we provide some 'estimates' of extent of net migration into the core city as a whole and into the different zones within the city.

1. Extent of migration into Madras City upto 1961

Very rough 'estimates' of the magnitudes of migrants into Madras city for the decades 1901 to 1961 can be obtained from the data provided in 1961 Census.[22] Two sets of such 'estimates' can be obtained from these data:

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22. We need to note the following points regarding the 'quality' of these data:

First, 1961 Census has not clarified whether the data on number of migrants, or on registered births and deaths in Madras city for different Census years from 1901-1961, have been 'corrected' for jurisdictional changes in the city. We assume that these corrections have not been made and hence, compare these 'estimates' on migrants with population data which has also not been corrected for jurisdictional changes.

Secondly, regarding the data on migrants, it is not clear whether the migrants refer to 'birth place' migrants or 'last residence' migrants. As the 1961 data refers to 'birth place' migrants we assume the same for other census years also. This rules out comparison of these data with 1971 data as the latter refers to 'last residence' migrants. We also assume that the data do not include 'migrants from within the city'.

1. The first set of 'estimates' is from the data on the migrant population in Madras City for each Census year, except 1941, for the period 1901-1961. From this data, we can get 'estimates' of net migrants into the city for each decade (except, again 1931-41 and 1941-51) during 1901-1961. This is given in table 12.

2. The second set of 'estimates' is from the data on the number of registered births and deaths in Madras city for the period 1901-1961. These data are available in the 1961 Census. The 'estimates' based on these data are given in table 13.

It is clear from the tables that as regards the magnitude of net inmigrants during any decade for the period 1901-1961, the two sets of 'estimates' differ widely.[23] But both the tables point to certain long term tendencies in migration into the city: It is clear that migration into the city appears to have picked up during the 20s and the 30s, but the 40s appear to be the years when migration into the city attained phenomenal magnitudes: The biggest wave of migration into the city appeared in this decade. After this big wave in the 40s, there was a sudden fall in the extent of inmigration in the 50s again.

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23. Of the two sets of 'estimates', the latter, based on registered births and deaths, appears more suspect. This is particularly so for the initial period, from 1901-1921, when the registered deaths were more than registered births, thus inflating the figures on net inmigrats during the period. As Mr.M.W.M.Yeattes, the Census Superintendent of Madras noted in the 1931 Census: "The figures (on registered births and deaths) are subject to a good deal of qualification, for registration of vital statistics is by no means perfect even now and was notably less so forty years ago. The recording of these statistics has been in fact constantly developing and this introduces an unknown element of variation into the results." Quoted in Census of India (1961c), p.48.

TABLE 12 : MIGRANTS INTO MADRAS CITY DURING 1901-1961

Census year	Population of Madras city	Total migrants in the population	Change in population	Change in migrant population (net inmigration)	Net inmigrants as a per cent of change in population	Index for net inmigrants
1901	541167	160623	--	--	--	--
1911	555620	173344	14453	12721	88.02	100
1921	578550	176500	22930	315[illegible]	13.76	25
1931	713394	225225	134844	48725	36.13	383
1951	1416056	574425	702662*	349200*	49.70*	2745*
1961	1729141	642828	313085	68403	21.85	538

Note: Data for migrant population are not available for 1941.

*refers to the period 1931-1951

Source: Census of India (1961 c); p.53.

TABLE 13 : REGISTERED BIRTHS AND DEATHS, AND ESTIMATED MIGRANTS, MADRAS CITY, 1901-1961

Decade	Registered births	Registered deaths	Change in population during the decade	Natural increase in population during the decade	Net inmigrants during the decade	Index for net in-migrants
1901-1911	191903	219610	14453	- 27707	42160	100
1911-1921	196344	219307	22930	- 22963	45893	109
1921-1931	225035	224441	134844	594	134250	318
1931-1941	294485	248212	143059	46273	96786	230
1941-1951	377347	292804	559603	84543	475060	1127
1951-1961	650590	371286	313085	279304	33781	80

Source: Census of India (1961 c); p.48.

The above picture of the pattern of migration during the period 1901-1961, with one big wave of migrants entering the city in the 40s, is consistent with the pattern of growth of population of the city during the period 1901-61, which we had observed earlier (See p.8, table 1).

2. <u>Extent of migration into Madras City, 1961-1971</u>

In the 1971 Census the 'last residence' concept was used to identify a migrant. This ruled out any meaningful comparison of the 1971 migration data with that of 1961 Census where the concept of 'birth place' had been used to identify a migrant. Given this, any estimation of net inmigration into the city is not possible on the basis of Census migration data.

Again, we have to fall back upon Census population data, and what little data we have on the natural rate of increase in population, in order to arrive at some rough 'estimates' of migrants into Madras City during 1961-71.

The 1961 Census gives birth and death rates for the population in selected divisions in Madras city.[24] The natural rate of increase in population in the different zones of the city during the period 1961-71 are calculated with the following two assumptions:

1. The birth rate/death rate for any zone is given by the simple average of the birth rates/death rates of the divisions within the zone for which data are available;

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24. The data are given separately for the slum and the non-slum population in the following divisions of the city: Muthialpet in the Trade and Commerce Zone; Kilpauk, Thousandlights, Santhome and Alwarpet in the Old Residential Zone; Royapuram and Agaram in the Manufacturing Zone; and Shenoynagar, Adyar and Rajajinagar in the New Residential Zone. See Census of India (1961 g); p.27.

and 2. These birth rates/death rates given for the year 1960, remain stable over the decade 1961-71.

The number of migrants[25] into different zones of the city, estimated on the basis of the above assumptions, are given in table 14. We have to note that these migrants include even intra-city migrants and hence, are not comparable with figures for earlier decades, given in tables 12 and 13.

TABLE 14 : ESTIMATED NUMBER OF NET MIGRANTS INTO MADRAS CITY DURING 1961-1971

Zone	Net migrants (+: inmigrants -: outmigrants)	Net migrants as a per cent of increase/decrease in population
1. Manufacturing Zone	+ 196842	54.61
2. Trade and Commerce Zone	- 63389	388.41
3. Old Residential Zone	+ 17459	13.38
4. New Residential Zone	+ 191395	74.16
Madras City	+ 342307	46.72

Note: 1. The figures are obtained after making suitable corrections for changes in area.

2. Between 1961-71, there was a decrease in the population of Trade and Commerce Zone, after making adjustments for area changes.

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25. We need not repeat that these numbers give very rough 'estimates' and represent only rough orders of magnitude.

The figures in the table confirm what we had anticipated earlier in terms of movement of population in the four zones of the city: There has been a heavy outmigration from the Trade and Commerce Zone in the central parts of the city during 1961-71. The Old Residential area appears to have seen the minimum movement of population among all the 4 zones. The outlying areas of the city, the Manufacturing zone and the New Residential zone, have seen a heavy influex of population during this period. All these results are in line with the pattern of growth of population in the city, that we had observed earlier (see table 2, p.11).

3. Concluding observations

The major 'results' on the extent of migration into Madras city are in line with our earlier 'hypotheses' which were based on the pattern of growth of Madras city over time We can summarise these 'results' now:

1. The biggest wave of migration into Madras city in this century was observed in the 40s. After the 40s there has been a perceptible decline in the number of migrants into the city.

2. In the 60s -- if not in the earlier decade of 50s -- there has been a trend of population movement away from the central parts of the city, while the outlying areas have continued to receive a large number of inmigrants even during this period.

For the satellite towns we do not have figures either on the number of migrants or on birth rates and death rates from which one could estimate, however roughly, the number of migrants into these towns. But a very fast rate of growth of population of these towns -- especially of the fast growing towns -- would not have been possible without large scale migration into these towns in the last few

decades -- including the sixties.[26] Given that there has been an outward movement of population within the city itself during the 60s, this raises the possibilities of a 'reverse migration' from the city to these towns, an issue which brings us to the larger issues on the nature of migration.

V. PATTERN AND NATURE OF MIGRATION

In the previous section we were concerned with the issue of the extent or magnitude of migration into Madras city. We did not go into the question of how this migration takes place: Does it take place as a one-shot event, so to say, where the migrant leaves his initial place of residence, comes to Madras and settles down in the city for good? Or, does he trace a series of steps before landing up in Madras which, incidentally, may not be his final place of residence and from where he is likely to move again? In other words, does migration take place as a one-shot event or as a process involving a series of steps? It is to this crucial question that we turn now. It may be noted here that it is not our purpose here to provide any direct, conclusive evidence on this;[27] we shall mostly confine ourselves to Census population data as before, and see what preliminary hypotheses do emerge on this crucial question from these data.

1. Reverse migration from the city to satellite towns in the sixties

At the risk of being repetitive, let us briefly summarise some of the major conclusions we have come to so far:

1. The largest wave of migration into Madras city took place in the forties, after which there has been a perceptible

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26. The data on migration into Madras Urban Agglomeration, given in 1971 Census clearly show this. This will be taken up in one of our subsequent papers.

27. This will be done in one of our subsequent papers.

decline in migration into the city.

2. During the 60s, there has been an 'outward shift' in the population within the city itself.

3. The 60s (as also the 70s) happens to be the decade when the satellite towns grew at a much more rapid rate than the city as such.

The three 'conclusions' noted above lend some evidence, however indirect, for the conjecture that during the 60s there must have taken place a substantial degree of migration from the city to the satellite towns -- i.e., some amount of 'reverse migration' must have taken place in the 60s. In fact, the Census migration data for 1971, given in table 15 confirm this.

Two points stand out clearly from the table.

1. Of the total migrants from within the Madras Urban Agglomeration in 1971, an overwhelming proportion -- more than 90 per cent -- were 'reverse migrants', i.e., migrants from Madras city to satellite towns.

2. This trend towards 'reverse migration' in relation to migration from the satellite towns to the city appears to be on the increase over time; this is clear from a comparison of columns (4)-(6) with columns (7)-(9).

The table also indicates that this trend towards 'reverse migration' must have set in the mid-sixties, if not earlier. In fact, nearly two-thirds of the 'reverse migrants' were residing in their place of enumeration (in the 1971 Census) for more than 3 years. This leads us to a further question: After the largest wave of migration into Madras City in the 40s, did a 'reverse migration' from the city -- especially the congested, central parts of the city -- to the satellite towns set in in the very next decade,

TABLE :15 : INTRA-AGGLOMERATION MIGRATION FOR MADRAS URBAN AGGLOMERATION

	Migrants in 1971			Migrants residing in the place of enumeration for less than 3 years			Migrants resiging in the place of enumeration for more than 3 years		
	Males (1)	Females (2)	Persons (3)	Males (4)	Females (5)	Persons (6)	Males (7)	Females (8)	Persons (9)
1. Migrants to satellite towns from Madras city	69085 (91.92)	72730 (90.29)	141815 (91.08)	24590 (95.20)	24680 (93.10)	49270 (94.13)	44495 (90.20)	48050 (88.92)	92545 (89.53)
2. Migrants to Madras city from satellite towns	6075 (8.08)	7820 (9.71)	13895 (8.92)	1240 (4.80)	1830 (6.90)	3070 (5.87)	4835 (9.80)	5990 (11.08)	10825 (10.47)
3. Total migrants from within Madras Urban Agglomeration	75160 (100.00)	80550 (100.00)	155710 (100.00)	25830 (100.00)	26510 (100.00)	52340 (100.00)	49330 (100.00)	54040 (100.00)	103370 (100.00)
4. 1st row/2nd row	11.37	9.30	10.21	19.83	13.49	16.05	9.20	8.02	8.55

(Figures in brackets give column percentages)

Source: Figures for 1971 Census, obtained from Directorate of Census Operations, Madras

i.e., in the 50s? The fact that the 'outward shift' in the population of the city had set in in the fifties itself (see table 4, p.15) lends some support to such a hypothesis. What does the Census migration data say about this?

2. Reverse migration in the fifties

The Census for 1961 does not give data on intra-agglomeration migration for the simple reason that the concept of urban agglomeration was not adopted in that Census. But the migration data for Chenglepet district, the district adjacent to Madras city and part of which is included in Madras Urban Agglomeration,[28] appear to indicate that 'reverse migration' from the city to satellite towns had set in in the fifties itself. These data are given in table 16 and table 17.

It is clear from table 16 that in 1961, nearly one-third of in-migrants in Chengleput were from Madras City. Thus it is clear that 'reverse migration' had in fact set in in the fifties itself, although in 1961, these reverse migrants accounted for only 29 per cent of the total migrants between Madras City and Chenglepet district (i.e., migrants from Chenglepet to Madras plus migrants from Madras to Chinglepet district). As the data we have given in the table refers to the 'stock' of migrants in 1961 -- with these migrants having migrated to their place of enumeration either during the fifties or even earlier -- the table cannot give us a picture of the relative importance of the migrants from Madras City to Chenglepet district in relation to migrant from Chenglepet distiict to Madras city during the fifties. For this we have to turn to table 17.

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28. Of the 74 towns in Chenglepet district in 1971, 57 towns were the satellite towns of Madras Urban Agglomeration. These 57 towns were all the towns in Saidapet taluk plus all, except Sriperumbudur town, in Sriperumbudur taluk. In 1971, these 57 towns had a population of 700481, which accounted for 69.31 per cent of the urban population in Chinglepet district.

TABLE 16 : MIGRATION TO AND FROM CHENGLEPET DISTRICT, 1961

District	Number of in-migrants in Chenglepet district	Number of out-migrants from Chengleput district	Net migration
Madras City	61138 (34.59)	149676 (72.78)	- 88538
North Arcot	56767 (32.11)	37257 (18.12)	+ 19510
South Arcot	19908 (11.26)	10454 (5.08)	+ 9454
Salem	4020 (2.27)	1095 (0.53)	+ 2925
Total (from and to all districts in the state)	176772 (100.00)	205654 (100.00)	- 28882

Source: Census of India (1961a); p.11.

TABLE 17 : PATTERN OF MIGRATION BETWEEN MADRAS CITY AND CHENGLEPET DISTRICT, 1961

	Duration of residence in the place of enumeration						
	Less than 1 year	1-2 years	3-5 years	6-10 years	above 10 years	Period not stated	Total
Migrants from Chenglepet district to Madras City	9001	13047	18602	31204	75583	2239	149676
Migrants from Madras city to Chenglepet district	9509	11308	11069	10447	42333	1047	61138
2nd row as a per cent of 1st row.	105.64%	86.67%	59.51%	33.48%	23.49%	--	40.85%

Source : Census of India (1961 f).

This table makes it very clear that reverse migration -- from Madras city to Chenglepet district -- in relation to migration in the other direction -- from Chenglepet district to Madras city -- has been consistently on the increase in the fifties. In fact, the two streams are almost equal to each other in the latter half of fifties, the stream of reverse migrants in fact outnumbering -- albeit by a small margin -- the migrant-stream in the other direction (from Chenglepet district to Madras city) in the last year of the decade.

The broad conclusion that emerges from what we have said so far can be set out as follows: After the biggest wave of migration into Madras city in the 40s, the next two decades -- the fifties and the sixties -- saw an 'outward shift' of the population within the city, as also a reverse flow of migrants from the city to the satellite towns. This reverse flow, which appears to have set in in the 50s, got strengthened only towards end of that decade, when in fact it outnumbered the flow from the satellite towns to the city; and this tendency appears to have got strengthened all through the sixties.

We may clarify here that the broad conclusion set out above does not imply that there was no inflow of migrants into the city during the fifties and sixties: After a heavy inflow in the 40s, the city appears to have seen streams of both inmigrants and outmigrants during the next two decades.[29]

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29. According to 1961 Census migration data, of the 642,828 migrants in Madras city as many as 368,220 came into Madras during the decade 1951-61. We had seen that the net inmigration into the city during this decade was of the order of 68403 (see table 12, p.36). So, the outflow from the city during 1951-61 must be of the order of 299,817, indicating that during the fifties the inflow and the outflow were of the same order. Similar calculations for the sixties is not possible because of the change in definition of a migrant between the Censuses of 1961 and 1971.

All that we have said above is that the stream of outmigrants to the satellite towns got strengthened during these two decades -- perhaps even outnumbering the stream of inmigrants from these towns from around the end of fifties and all through sixties: It represents, to some extent, a resettling of the population of city in response to the expansion of the economic ambit of the city, while the city itself kept receiving fresh streams of migrants.

This 'reverse migration' which set in in the fifties and the sixties brings us to a larger issue: If the migrants -- at least a substantial proportion of them -- who entered the city in the 40s decided to move out to a satellite town in the later period -- of fifties and sixties --, it is reasonable to assume that with a substantial proportion of migrants migration does not remain a one-shot event, and they are likely to go through a series of steps before settling down, finally in one place. So, if some sort of 'footlooseness' has characterised the nature of migrants -- or a substantial proportion of them -- even after they came to Madras city, has it been so even before they came to the city? In other words, can we say that a substantial proportion of migrants would have traced more than one step before coming to Madras city? What does the Census population data say about this, directly or indirectly? It is to this question that we turn now.

3. Step migration to Madras city

Census data on the growth pattern of Madras city, its satellite towns and the rural areas around it over time (from 1921 onwards) lend some evidence, however indirect, to the hypothesis that a substantial proportion of migrants trace more than one step before coming to Madras city. These data are summarised in table 18.

This table gives the migration-cum-statistical error (i.e., decinnial growth rate of population minus the decinnial

TABLE 18 : MIGRATION-CUM-STATISTICAL ERROR, MADRAS CITY AND CHENGLEPUT DISTRICT, 1921-1961

Decade	Decinnial growth rate of population				Decinnial natural rate of growth				Migration-cum-statistical error			
	Chenglepet district			Madras city	Chenglepet district			Madras city	Chenglepet District			Madras city
	Total	Rural	Urban		Total	Rural	Urban		Total	Rural	Urban	
1921-31	8.9	9.2	7.3	23.31	12.2	12.8	8.5	0.10	- 3.3	- 3.6	- 1.2	+ 23.21
1931-41	9.2	7.1	21.1	20.05	11.7	11.9	10.3	6.49	- 2.5	- 4.8	+10.8	+ 13.56
1941-51	7.9	10.7	- 7.4	65.34	8.0	7.9	8.6	9.87	- 0.1	+ 2.8	-16.0	+ 55.47
1951-61	11.5	7.6	31.5	22.11	10.5	9.8	14.0	19.72	1.0	- 2.2	+17.5	+ 2.39

Source : 1. Census of India (1961 c) ; p.48

2. Census of India (1961 a); table 2; p.8.

natural rate of growth of population) for rural and urban areas of Chenglepet district and Madras city; the period covered is 1921-61. The data are also put on a graph (p.51).

We need not repeat here the reasons why the data indicate just the broad trends over time rather than giving any 'estimates' of migrants during any decade. The broad trends observable can be broadly summarised as follows:

a) During the decade 1921-31, people moved from rural and urban areas of Chenglepet district to Madras city.

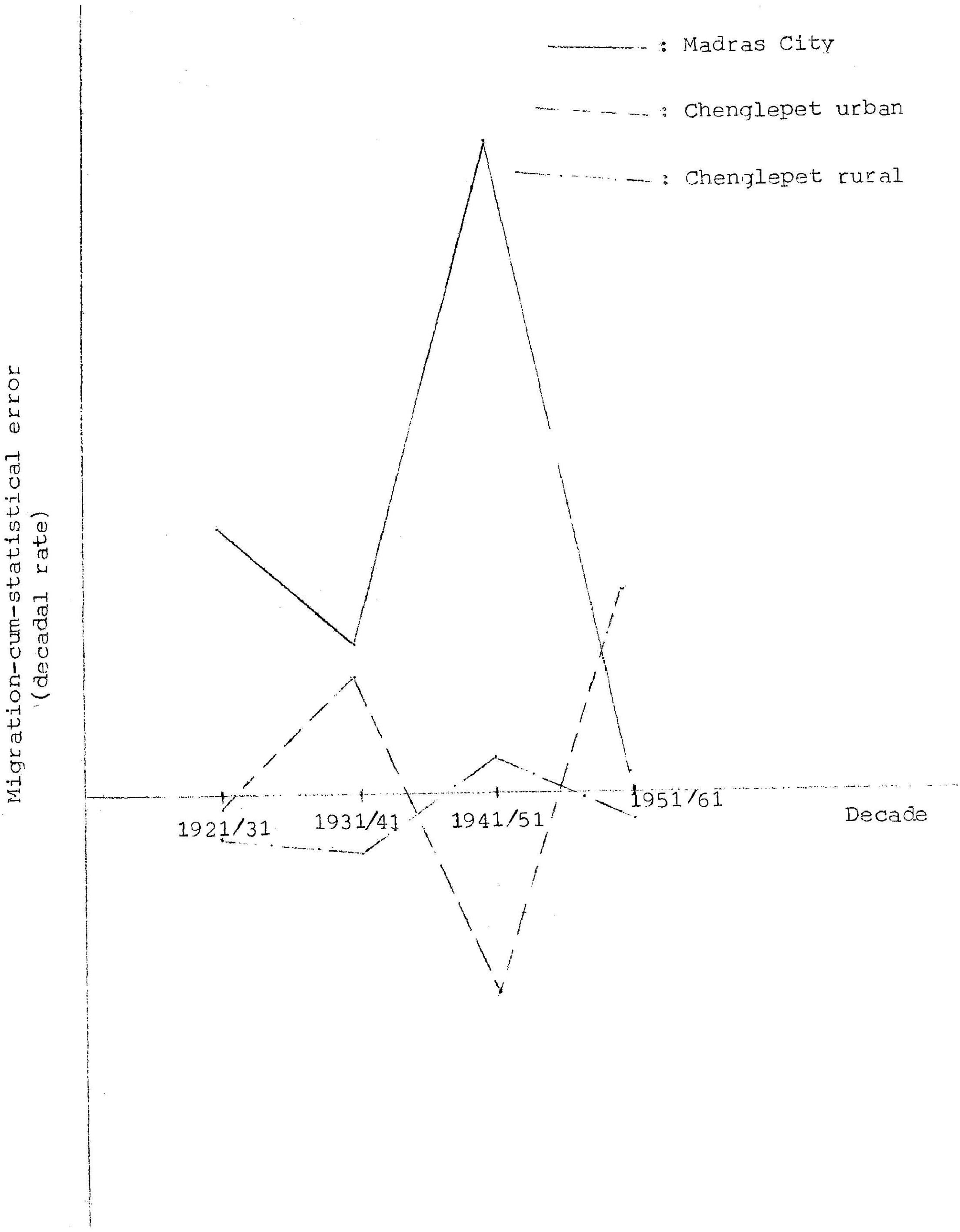
b) During the decade 1931-41, people from rural areas of Chinglepet appear to have moved into urban areas of Chenglepet district as well as to Madras city.

c) During the decade 1941-51, people from urban areas of Chenglepet district moved into Madras city on a very large scale. Note that even the decinnial rate of growth of population was negative (- 7.4) for urban areas of Chenglepet during this decade. It also appears that no large scale migration from the rural areas of Chenglepet took place in this decade.

d) During the decade 1951-61, the urban areas of Chenglepet district, which had seen large scale out-migration during the previous decade, receive a large number of inmigrants, perhaps from the rural areas of Chenglepet district. This also happens to be the decade when Madras city does not experience any large scale inmigration.

The observations made above provide support, in our view, for the hypothesis that with a substantial proportion of the migrants, migration to Madras city was preceded by at least one step -- to an urban place, presumably a small town, in Chenglepet district, around Madras city. Step migration does indeed seem to play a major role in migration to the city.

FIGURE I : MIGRATION-CUM-STATISTICAL ERROR FOR MADRAS CITY AND CHENGLEPET DISTRICT, 1921-1961



4. Concluding observations

The data given so far appear to provide some support to the hypothesis that with a substantial proportion of the migrants, migration takes place not as a one-short event, but as a process involving a series of steps. It looks as if a number of migrants move from their initial place of residence to a small town in Chengalpattu district before moving into Madras city, and a number of those who have come into the city move out later to satellite towns. The geographical movement of migrants appears to be characterised by a substantial degree of 'footlooseness'

Let us hasten to add that the data provided so far do not indicate that the same set of people who move from their place of residence to a small town then move over to Madras city, and then at a later time, move out from the city to a , satellite town. All that we have done is to look at streams of migrants from rural to urban Chengalpattu, from urban Chengalpattu to Madras city and from Madras city to satellite towns at different points of time and piecing together these data we suggest that step migration on the part of a substantial number of migrants is a strong possibility: Step migration, so to say, is still a conjecture, rather than a proven fact. But given the nature of census population as well as migration data we possibly can not go beyond this. A conclusive proof regarding the existence, or otherwise, of step migration obviously needs direct field level data -- And as pointed out earlier this will be taken up in one of our subsequent papers.

VI NATURE OF MIGRANTS

In the previous section we noted that there are reasons to believe that the geographical movement of migrants appears to be characterised by a substantial degree of 'footlooseness' One would expect that this 'footlooseness' in terms of geographical movement is not unrelated to the 'footlooseness' in

terms of the occupational characteristics of migrants. It is to this issue -- the occupational characteristics of migrants -- that we turn now: Are the migrants mostly industrial workers or are they mostly employed in the tertiary sector? Are they mostly in the so-called 'formal' sector, or the so-called 'informal' sector? Is there any difference, in terms of occupational characteristics, between migrants to Madras city and migrants to satellite towns? These are some of the questions that we try to answer in this section.

At the very outset let us clarify that we have not made use of the data on occupational characteristics of <u>migrants</u> as given in the Censuses (of 1961 and 1971) in this section. We have mostly relied on the Census data on workforce in Madras city and satellite towns, observed the changes that have taken place in the composition of workforce over time (for the most part between 1961 and 1971), and from these changes tried to infer whatever we can on the nature of migrants. Needless to say, these inferences can only be considered very preliminary and need to be tested with more direct data on the nature of migrants, a task we shall take up in our subsequent papers.

The characteristics of the migrants in any urban area would very much depend on the nature of economic activities in the urban area. Thus, one would expect that an industry town would have a large number of industrial workers as migrants, and a service town a large number of people employed in the service sector. Thus a brief account of the nature of economic activities in Madras over time and the general nature of migrants accounted for by the nature of these economic activities would serve as a background for a somewhat more detailed discussion on the characteristics of the migrants.

1. Role of industrialisation in migration

Madras, unlike Calcutta and Bombay, was basically an educational, administrative and also commercial city -- rather than a major industrial centre -- even upto the First World War. As Lewandowski notes:

> Although the infrastructure for industrial development was being laid during the late nineteenth century with the establishment of a few tanneries, railway workshops, cotton mills and other small enterprises, Madras functioned primarily as a base for overseas trade....At a time when Bombay and Calcutta were expanding industrially as textile and jute factories were founded, there were no industries of a comparable size established in Madras....In fact, the economic dynamic for the growth of Madras was the development of the administrative and service sector. By 1900, about one-fourth of the city's total population was supported by those employed in government, professional and personal service occupations. As the bureaucracy grew, central, provincial and municipal officers and their families stationed in the city needed the services of a larger number of domestics, cooks, barbers, washermen, artisans and small shopkeepers. Jobs were also expanding in construction, road and rail transport, and the food-processing industries....[30]

The nature of economic activities in Madras upto the First World War, and the demand made by these on the nature of labour force also determined the character of the migrants, to a large degree, upto the 20s or so. This is clearly brought out by the differences in the composition of the population

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30. Lewandowski, S (1980); p.42.

in Madras on the one hand, and Calcutta and Bombay on the other, as noted by a perceptive observer:

> The populations of Bombay and Calcutta are largely made up of imported workers, of men in the prime of life. The men are out of all proportion to the women, the young to the very old; the birth rates are very low. The population of Madras is really the ordinary population of an Indian village multiplied many times. Men are equal in number to women, the birth rate is high, and the age periods are smoothly graduated.[31]

As Lewandowski notes, one of the reasons for these differences was that while in Calcutta and Bombay 'There was a greater need for industrial labour, and single men migrated longer distances in search of factory employment which did not provide facilities for families, in Madras... short-distance-migrants worked as coolies and casual labourers on construction sites, and their wives were employed as domestics, often near the mud and thatch homes they constructed to live in.'[32]

This picture appears to have changed to an appreciable degree with the First World War, which led to a considerable degree of industrial activity in manufactures, especially of military requirements, in the city. But it was the Second World War which gave a great impetus to industrial development, and 'hastened the transformation of Madras city from the educational and administrative capital of the South to an industrial centre.'[33]

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31. Molony, J.C. (1926); as quoted in Lewandowski (1980), p.53.
32. Lewandowski (1980), p.53.
33. Lewandowski (1980), p.71. For a discussion on industrialisation of Madras city, see, also, Census of India (1961 c); Ch. VII; pp 109-128.

These changes in the nature of the economic activities in the city obviously got reflected in the changes in the composition of the workforce in the city, particularly in the forties and fifties. This is clear from table 19. The table suggests that a large scale migration of industrial workers to the city must have taken place in the forties and the fifties. We may also recall here that the forties happen to be the period of very rapid growth of Madras city.

The next spurt of industrialisation, especially of the heavy industry type, in and around Madras city took place after Independence, especially during the Second Five Year Plan period in the late fifties. A striking feature of this development was that the big industries which came up in this period were mostly located outside the city, in satellite towns. Such location of units enabled the development of satellite towns, and surrounding areas like Pallavaram, Tiruvottiyur, Ponneri, Red Hills, Poonamallee, Villivakkam, St.Thomas Mount, Chrompet, Tiruvanmiyur, Tambaram, Alandur, Madhavaram, Ambattur, Avadi, Meenambakkam, Ennore, Vandalur and Madurantakam.[34]

We may recall here that the sixties -- and the seventies -- happen to be the period when the satellite towns grew at a very rapid rate. We may also recall two other features regarding the growth of satellite towns: First, that the tendency toward 'reverse migration' from Madras city to satellite towns had in fact set in around the late fifties and then continued through the seventies (see pp 44-48) and second, of the satellite towns, the industry towns have been growing at a very rapid rate from 1961 onwards (see p. 26). The features noted above suggest the following:

1. The rapid growth of satellite towns in the fifties -- and in the next two decades -- is primarily due to industrialisation, especially

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34. See Census of India (1961 c); p.116.

TABLE 19 : COMPOSITION OF MALE LABOUR FORCE IN MADRAS CITY, 1901-1971

Year	Male labour force			Annual compound growth rate of male labour force				
	Primary sector	Secondary sector	Tertiary sector	Primary sector	Secondary sector		Tertiary sector	
1901	9121 (6.16)	46372 (31.30)	92652 (62.54)	--	--		--	
1911	10616 (6.35)	49472 (29.64)	106823 (64.00)	1.53	0.65		1.43	
1921	9658 (5.29)	48816 (26.74)	124087 (67.97)	- 0.94	- 0.13	0.02	1.51	1.61
1931	10853 (5.24)	46642 (22.52)	149619 (72.24)	1.17	- 0.45		1.89	
1951	10791 (2.76)	112466 (28.76)	267838 (68.48)	- 0.03	4.50		2.95	
1961	7189 (1.51)	155418 (32.71)	312469 (65.77)	- 3.98	3.29	3.89	1.55	2.56
1971	10423 (1.64)	214681 (33.71)	411729 (64.65)	3.78	3.28		2.80	

Note: Figures in brackets give percentages to total male workforce in the year.

Source: Mitra, A et al.

of the large scale type, of these towns, which set in in the late fifties and continued in the next two decades.

and 2. In the reverse migration which set in in the late fifties and continued later -- a process almost co-terminus with industrialisation of the satellite towns -- a large component must be made up of the industrial workers.

In sum, it appears that rapid growth, either of Madras city in the forties or of the satellite towns in the fifties and after, is closely related to the industrialisation of these areas. While Madras city attracted a large number of industrial workers in the forties, with a shift in emphasis in industrialisation from the city to the satellite towns in the late fifties and after, these satellite towns must have attracted a large number of industrial workers in this period, both from Madras city as well as from other parts of the state. And this should have been particularly so in the case of industry towns among these satellite towns.

In the absence of any direct evidence the above statement remains a broad hypothesis. We shall not pursue it any further here. The rest of the section will be devoted to a study of the changes in worforce in Madras city and satellite towns during the sixties. The specific questions we seek to answer are:

1. What have been the changes in workforce in the four zones of the city during the sixties? What have been the contribution of different categories of workers to the changes observed?

2. What have been the changes in the workforce in the different types of satellite towns -- like the fast-growing ones, stagnant ones and the 'late-comers' -- in the sixties?

An answer to these questions, we believe, will provide some indirect evidence as to the nature of migrants in different zones of Madras city and in different types of satellite towns in the sixties. With the emphasis in industrialisation being shifted from Madras city to satellite towns during this period, one would expect that the nature of migrants into the city during this period would be different from the nature of migrants during the forties. Even in the sixties different zones within the city might have attracted different types of migrants. Similarly, the nature of migrants moving into different types of satellite towns in this period may be different. It is to issues like these that we address ourselves in the rest of this section.

2. Changes in workforce between 1961 and 1971 : Madras city

Tables 20 and 21 summarise the results on changes in the workforce in the 4 zones of Madras city for the period 1961-71.[35]

The following broad points emerge from these tables:

1. In the Trade and Commerce Zone there has been an absolute decrease in the number of workers. This absolute decline is present in all categories of workers[36] except two, viz., 'Trade and Commerce' and 'Transport, storage and communications'; even in these two the workforce has shown

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35. A correction for changes in area of the 4 zones between 1961 and 1971 was done as follows: The total number of workers in a zone in 1971, as given by the 1971 Census, was 'corrected' for area changes just the way the corrections for the population figures were applied. The 'corrected' figure so obtained was then distributed among the different categories of workers in the same proportion as given by the 1971 Census.

36. We shall leave out the primary sector from our discussion here.

TABLE 20: DISTRIBUTION OF WORKFORCE AMONG DIFFERENT ZONES OF MADRAS CITY IN 1961 AND 1971

Zones	Total workers			Cultivators			Agricultural labourers			Mining, Quarrying Livestock etc.		
	1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate
Manufacturing Zone	185296 (35.16)	263087 (37.97)	3.57	66 (63.46)	289 (27.98)	15.91	36 (18.65)	263 (39.55)	22.00	2381 (33.23)	3289 (35.68)	3.28
Trade and Commerce Zone	85752 (16.27)	75492 (10.89)	-1.27	1 (0.96)	219 (21.20)	71.41	49 (25.39)	38 (5.71)	-2.51	400 (5.58)	264 (2.86)	-4.07
Old Residential zone	164419 (31.20)	193696 (27.95)	1.65	15 (14.42)	252 (24.39)	32.16	71 (36.79)	155 (23.31)	8.12	3296 (46.00)	3913 (42.45)	1.73
New Residential zone	91514 (17.37)	160662 (23.19)	5.79	22 (21.15)	273 (26.43)	28.64	37 (19.17)	209 (31.43)	18.90	1088 (15.18)	1751 (19.00)	4.87
MADRAS CITY	526981 (100.00)	692937 (100.00)	2.78	104 (100.00)	1033 (100.00)	25.81	193 (100.00)	665 (100.00)	13.17	7165 (100.00)	9217 (100.00)	2.55

Note: 1. Figures in brackets give column percentages.

2. Because of the 'corrections' applied to the 1971 Census figures, the figures for the city as a whole, as given here, differ marginally from the figures given in the Census, 1971.

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Total primary sector			Household industry			Manufacturing other than household industry			Construction		
1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate
2483 (33.28)	3841 (35.19)	4.46	6186 (47.21)	5551 (49.20)	- 1.08	64328 (49.87)	87029 (48.28)	3.07	6526 (29.01)	9050 (27.25)	3.32
450 (6.04)	521 (4.77)	1.48	700 (5.34)	604 (5.35)	- 1.46	15591 (12.09)	14683 (8.14)	- 0.60	1609 (7.15)	1125 (3.39)	-3.52
3382 (45.32)	4320 (39.58)	2.48	3578 (27.31)	2847 (25.23)	- 2.26	31846 (24.69)	43136 (23.93)	3.08	7928 (35.24)	9607 (28.93)	1.94
1147 (15.37)	2233 (20.46)	6.89	2639 (20.14)	2281 (20.22)	- 1.45	17226 (13.35)	35426 (19.65)	7.48	6435 (28.60)	13431 (44.44)	7.64
7462 (100.00)	10915 (100.00)	3.88	13103 (100.00)	11283 (100.00)	- 1.48	128991 (100.00)	180274 (100.00)	3.40	22498 (100.00)	33212 (100.00)	3.97

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Total secondary sector			Trade and Commerce			Transport, storage and communications			Other services			Total tertiary sector		
1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annual growth rate	1961	1971	Annu grow rate
77040 (46.81)	101630 (45.22)	2.81	27508 (27.29)	51355 (30.80)	6.44	27211 (43.68)	60668 (46.90)	8.35	51054 (26.62)	45593 (28.29)	-1.12	105773 (29.80)	157616 (34.47)	4.(
17900 (10.88)	16412 (7.30)	-0.86	28477 (28.25)	31759 (19.05)	1.10	11460 (18.39)	12871 (9.95)	1.17	27465 (14.32)	13921 (8.64)	-6.60	67402 (18.99)	58551 (12.81)	-1.9
43352 (26.34)	55590 (24.73)	2.52	31166 (30.91)	50342 (30.19)	4.91	15657 (25.13)	27602 (21.34)	5.83	70862 (36.94)	55823 (34.64)	-2.36	117685 (33.16)	133767 (29.26)	1.2
26300 (15.98)	51138 (22.75)	6.86	13663 (13.55)	33273 (19.96)	9.31	7973 (12.80)	28228 (21.82)	13.48	42431 (22.12)	45805 (28.43)	0.77	64067 (18.05)	107306 (23.47)	5.2
164592 (100.00)	224770 (100.00)	3.17	100814 (100.00)	166729 (100.00)	5.16	62301 (100.00)	129369 (100.00)	7.58	191812 (100.00)	161142 (100.00)	-1.73	354927 (100.00)	457240 (100.00)	2.5

TABLE 21 : CONTRIBUTION OF DIFFERENT CATEGORIES OF WORKERS TO CHANGES IN WORKFORCE IN MADRAS CITY, 1961-71

Zone	Cultivators	Agricultural labourers	Mining, Quarrying, Livestock etc.	Total primary sector	Household industry	Manufacturin other than household industry
1. Manufacturing Zone	223 (0.29)	227 (0.29)	908 (1.17)	1358 (1.75)	- 635 (-0.82)	22701 (29.18)
2. Trade and Commerce Zone	218 (-2.12)	- 11 (0.11)	-136 (1.32)	71 (-0.69)	- 96 (0.93)	- 908 (8.84)
3. Old Residential Zone	237 (0.81)	84 (0.29)	617 (2.11)	938 (3.21)	-731 (-2.50)	11290 (38.59)
4. New Residential Zone	251 (0.36)	172 (0.25)	663 (0.96)	1086 (1.57)	-358 (-0.52)	18200 (26.31)
5. Madras city	929 (0.56)	472 (0.28)	2052 (1.24)	3453 (2.08)	-1820 (-1.10)	51283 (30.90)

Note: Figures in brackets give row percentages.

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Construction	Total Secondary sector	Trade & commerce	Transport, storage & communications	Other services	Total tertiary sector	All workers
2524 (3.25)	24590 (31.61)	23847 (30.66)	33457 (43.01)	- 5461 (-7.02)	51843 (66.64)	77791 (100.00)
- 484 (4.71)	- 1438 (14.49)	3282 (-31.96)	1411 (-13.74)	- 13544 (131.90)	- 8851 (86.20)	- 10268 (100.00)
1679 (5.74)	12238 (41.83)	19176 (65.54)	11945 (40.83)	- 15039 (-51.40)	16082 (54.97)	29258 (100.00)
6996 (10.12)	24838 (35.91)	19610 (28.35)	20255 (29.29)	3374 (4.88)	43239 (62.52)	69163 (100.00)
10715 (6.46)	60178 (36.26)	65915 (39.72)	67068 (40.42)	- 30670 (-18.48)	102313 (61.66)	165944 (100.00)

only a small growth over the decade. Particularly noteworthy is the rapid decline in the number of workers in the category 'other services' during this decade. In fact, as table 21 shows, the decline in this category is nearly 130 per cent of the decline in the total workforce. These facts indicate that the Trade and Commerce Zone, which has been getting depopulated during the decade, has also seen a substantial outmigration of workers, especially of workers in 'other services' during this period.

2. A sharp contrast is provided by the New Residential Zone: This zone, which has been growing at a very rapid rate during the sixties, has also seen rapid increases in all categories of workers except those in household industry.[37] The growth has been particularly rapid in two tertiary sector activities, viz., 'Transport, storage and communications' and 'Trade and Commerce'. In fact changes in these two activities account for nearly 60 per cent of the change in the total workforce in this zone. It is also noteworthy that the number of workers in 'other services' has in fact registered an increase, albeit a small one, in this zone, while this category has seen a decline in all the other three zones in the city.

3. It is noteworthy that the rate of growth of workforce in the category 'Manufacturing other than household industry' is much lower than those in the two tertiary sector activities viz., 'Trade and Commerce' and 'Transport, storage and communications' even in the Manufacturing Zone. In fact, in this zone changes in these two tertiary sector activities account for more than 70 per cent of the change in the total workforce.

4. The Old Residential Zone, which has been stagnant over the decade, exhibits this stagnation even in terms of its workforce. But even here the two tertiary sector activities, 'Trade and Commerce' and 'Transport, storage and communications' have shown high rates of growth.

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37. A large part of the decline in the work-force in household industry, observed in all the 4 zones of the city, may be due to changes in the definition of worker between the 1961 and 1971 Censuses. We shall deal with question of definitional changes shortly.

In sum, we can hypothesis that shifts in the population of the different zones in the city are largely accounted for by shifts in tertiary sector workforce. More specifically, we can put forward the following concrete hypotheses:

1. There has been a large scale out-migration of workers in 'other services' from the Trade and Commerce zone, the zone which got de-populated to a substantial degree in the 60s.

2. There has been a large scale influx of workers in two tertiary sector activities, viz., 'Trade and Commerce' and 'Transport, storage and communications', into the New Residential Zone and the Manufacturing Zone, the zones which have been growing at rapid rates in the 60s. These two zones have also seen a substantial influx of workers in 'Manufacturing other than household industry' during the period.

3. Changes in workforce between 1961 and 1971: Satellite Towns

Let us now turn to the satellite towns: What have been the changes in the composition of workforce in the satellite towns during the 60s? Does the pattern of change in satellite towns differ from the pattern observed for Madras city? Tables 22 and 23, which set out some details on the pattern of changes in the workforce in the satellite towns[38] in the 60s, are useful in answering these questions. The following broad points emerge from these tables:

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38. Data in these two tables refer to only those satellite towns which did not undergo any substantial change in area between the two Censuses of 1961 and 1971. While we could get the total population adjusted for area changes for all the satellite towns we could not get similar, adjusted, figures for workforce; hence the exclusion of satellite towns which have undergone substantial changes in area between 1961 and 1971. Thus we have considered in these tables only 8 (out of 15) fast-growing towns, 9 (out of 21) stagnant towns, and 8 (out of 10) late starters.

TABLE 22 : DISTRIBUTION OF WORKFORCE IN SATELLITE TOWNS OF MADRAS URBAN AGGLOMERATION IN 1961 AND 1971

Types of Satellite Towns	Total workers			Cultivators			Agricultural labourers			Mining, Quarrying Livestock etc.		
	1961	1971	Annual growth rate(r)	1961	1971	r	1961	1971	r	1961	1971	r
Fast growing Towns	6736 (29.42)	13622 (39.50)	7.30	393 (18.71)	368 (19.16)	-0.66	570 (19.04)	524 (8.31)	-0.84	932 (50.05)	962 (48.03)	0.32
Stagnant Towns	7665 (33.48)	8776 (25.45)	1.36	553 (26.32)	745 (38.78)	3.03	1323 (44.20)	2296 (36.43)	5.67	268 (14.39)	130 (6.49)	-6.98
Late starters	8494 (37.10)	12089 (35.05)	3.59	1155 (54.97)	808 (42.06)	-3.51	1100 (36.75)	3483 (55.26)	12.22	662 (35.55)	911 (45.48)	3.24
All satellite Towns	22895 (100.00)	34487 (100.00)	4.18	2101 (100.00)	1921 (100.00)	-0.89	2993 (100.00)	6303 (100.00)	7.73	1862 (100.00)	2003 (100.00)	0.73

Note: 1. Figures in brackets give column percentages.

2. r represents annual growth rate.

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Total primary sector			Household Industry			Manufacturing other than household industry			Construction		
1961	1971	r	1961	1971	r	1961	1971	r	1961	1971	r
1895 (27.24)	1854 (18.13)	-0.22	197 (45.92)	153 (51.17)	-2.50	2073 (31.52)	5026 (44.48)	9.26	215 (31.66)	373 (40.41)	5.66
2144 (30.82)	3171 (31.01)	3.99	113 (26.34)	34 (11.37)	-11.32	2831 (43.04)	2848 (25.20)	0.06	147 (21.65)	191 (20.69)	2.65
2917 (41.94)	5202 (50.87)	5.96	119 (27.74)	112 (37.46)	-0.60	1673 (25.44)	3426 (30.32)	7.43	317 (46.69)	359 (38.89)	1.29
6956 (100.00)	10227 (100.00)	3.93	429 (100.00)	299 (100.00)	-3.55	6577 (100.00)	11300 (100.00)	5.56	679 (100.00)	923 (100.00)	3.12

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Total secondary sector			Trade and commerce			Transport, storage and communications			Other services			Total tertiary sector		
1961	1971	r	1961	1971	r	1961	1971	r	1961	1971	r	1961	1971	r
2485 (32.34)	5552 (44.34)	8.37	633 (40.45)	1938 (52.04)	11.84	336 (33.01)	1271 (39.62)	14.23	1387 (24.46)	3007 (62.57)	8.05	2356 (28.54)	6216 (52.96)	10.19
3091 (40.22)	3073 (24.54)	-0.06	396 (25.30)	781 (20.97)	7.03	371 (36.44)	1001 (31.20)	11.41	1663 (29.32)	750 (15.61)	-7.65	2430 (29.44)	2532 (21.57)	0.41
2109 (27.44)	3897 (31.12)	6.33	536 (34.25)	1005 (26.99)	6.49	311 (30.55)	936 (29.18)	11.65	2621 (46.22)	1049 (21.83)	-8.75	3468 (42.02)	2990 (25.47)	-1.47
7685 (100.00)	12522 (100.00)	5.00	1565 (100.00)	3724 (100.00)	9.06	1018 (100.00)	3208 (100.00)	12.16	5671 (100.00)	4806	-1.64	8254 (100.00)	11738 (100.00)	3.58

TABLE 23 : CONTRIBUTION OF DIFFERENT CATEGORIES OF WORKERS TO CHANGES IN WORKFORCE IN SATELLITE TOWNS, 1961-1971

Types of satellite towns	Cultivators	Agricultural labourers	Mining, Quarrying and Livestock etc.	Total primary sector	Household industry	Manufacturing other than household industry
Fast growing Towns	- 25 (- 0.36)	- 46 (- 0.67)	30 (0.44)	- 41 (- 0.60)	- 44 (- 0.64)	2953 (42.88)
Stagnant towns	192 (17.28)	973 (87.58)	- 138 (- 12.42)	1027 (92.44)	- 79 (- 7.11)	17 (1.53)
Late starters	- 347 (- 9.65)	2383 (66.29)	249 (6.93)	2285 (63.56)	- 7 (- 0.19)	1753 (48.76)
All Satellite towns	- 180 (- 1.55)	3310 (28.55)	141 (1.22)	3271 (28.22)	- 130 (- 1.12)	4723 (40.74)

Note: Figures in brackets give row percentages.

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Construction	Total secondary sector	Trade and commerce	Transport storage and communications	Other services	Total tertiary sector	All Workers
158 (2.29)	3067 (44.54)	1305 (18.95)	935 (13.58)	1620 (23.53)	3860 (56.06)	6886 (100.00)
44 (3.96)	- 18 (- 1.62)	385 (34.65)	630 (56.71)	- 913 (- 82.18)	102 (9.18)	1111 (100.00)
42 (1.17)	1788 (49.74)	469 (13.05)	625 (17.39)	- 1572 (- 43.73)	- 478 (- 13.30)	3595 (100.00)
244 (2.10)	4837 (41.73)	2159 (18.62)	2190 (18.89)	- 865 (- 7.46)	3484 (30.06)	11592 (100.00)

1. The extremely important role played by influx of workers in 'Manufacturing other than household industry' in fast-growing towns is obvious. But what is also noteworthy is the rapid increase in workers in 'other services' in these towns during the decade: This rapid increase is particularly striking in view of the fact that almost everywhere else, either in the city or in satellite towns, the number of workers in this category has either shown a rapid decline, or remained stagnant (as in the New Residential Zone in Madras City). Thus one can hypothesis that there has been a large scale influex of workers in manufacturing industries and in 'other services' into the fast growing satellite towns during the 60s.

2. In sharp contrast to the fast growing towns, the workforce in 'manufacturing other than household industry' has virtually remained stagnant in stagnant towns. On the other hand these towns have seen a rapid increase in the workforce in two tertiary sector activities, viz., 'Trade and Commerce' and 'Transport, storage and communications' and also in a primary sector activity, viz., 'agricultural labourers'. It appears that growth in tertiary sector activities by themselves, in the absence of any growth in industrial activities, has not been able to impart any dynamism to these towns.

3. In the case of 'late starters' again, it appears that growth in manufacturing activities has provided the major impetus for the growth of these towns -- while the primary sector activities, which do play an important role in these towns, must have held back the growth of these towns; perhaps the reason why they are late-starters.

In sum, it appears that the changes in the population of different 'types' of satellite towns are largely accounted for by shifts in the workforce in 'Manufacturing other than household industries': Industrialisation -- or a lack of it --

appears to be the factor underlying rapid growth of satellite towns -- or, a lack of such rapid growth. This hypothesis is in line with the facts we had observed earlier regarding the functional characteristics of different 'types' of satellite towns. (see pp 28-32)

4. Concluding observations

From what we have said above so far in this section, the following broad hypothesis emerges:

While the earlier wave of migration into Madras city in the 40s consisted largely of an industrial labour force, the picture for the 60s appears to be somewhat different: In the latter decade, while industrial workers did migrate to the city in substantial numbers, the major part of the influx was accounted for by workers in tertiary sector activities, especially in 'Trade and Commerce' and 'Transport, storage and communications'. The picture for satellite towns for this decade (60s) was, again, different from that for Madras city: The major part of the influx here was accounted for by industrial workers, with workers in tertiary sector activities taking a second place.

The above statement, we repeat, is still a broad hypothesis; no more. And this, for two important reasons:

1. First, we have studied only the shifts in the distribution of workforce both in the city and satellite towns for the decade 1961-71. These shifts may be either because of influxes of workers belonging to some, or all, categories of workers, or because of shifting of the workforce from one category to another. While the former may represent an influx or an in-migration, the latter does not. And we have simply no way 'decomposing' the overall shifts observed by us into these two components.

2. The second problem is definitional: It is well known that the differences in the definitions of a worker as used in the 1961 and 1971 Censuses pose a large number of problems in comparing the workforces -- in their magnitudes as well as distributions -- in the two Censuses, and our exercise is no exception to this. It is generally assumed that these changes in definition must have affected comparison of workers in 'unorganised sectors' more than that of workers in 'organised sectors', and of female workers more than that of male workers.[39] For our exercise this would imply that these 'definitional problems' would be relevant more for tertiary sector activities -- especially the category 'other services' -- than for an activity like 'Manufacturing other than household industries', for one would expect that the latter has more of an 'organised' character than the former activities. Here our only 'defence' would be that in the case of two tertiary sector activities, viz., 'Trade and Commerce' and 'Transport, storage and communications' the magnitudes of rate of increase over the decade are perhaps

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39. For Madras city we studied the shifts in the distribution of male workers during the decade 1961-71: These results for just the male workforce were generally the same as those for the total workforce, inclusive of both male and female workers, except for the category 'household industry': While the male labour force in this category showed a slight increase -- or remained stagnant -- in all the zones of the city, the female labour force in this category showed a drastic decline in all the zones. This indicates that the definitional problem certainly is a major one in comparing this category over the decade. But it is noteworthy that in no other category were the results with only the male labour force qualitatively different from results with both male and female labour force together. The details on this exercise are given in the table in Annexure 4.

too large in all zones -- except the Trade and Commerce Zone -- and in all 'types' of satellite towns, to be accounted for purely by definitional changes. In the case of 'other services', the diametrically opposite trends observed in two areas - a rapid decline in the Trade and Commerce Zone and a rapid increase in fast-growing satellite towns -- cannot be attributed entirely to definitional changes : Prima facie one would expect the definitional changes to affect the comparisons in a particular category, in different zones or areas, in the same direction.

Now, the hypothesis stated above hardly answers one of the questions we posed right in the beginning of this section: Are the migrants mostly in the so-called 'informal' sector or the so-called 'formal' sector? This is because the census categories for studying the distribution of work-force are broad categories almost all of these categories encompassing both the 'formal' and 'informal' activities. This is particularly true of the activities in the tertiary sector.[40]

Now, an attempt to answer this question is beset with two major problems: The first is conceptual. The concept of 'the informal sector' has been a subject of a great deal of -- as yet unresolved -- debate. We do not propose to go into the issues involved in this debate. Here we use the

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40. The category 'other services' would include workers engaged in such 'formal sector' activities like generation and transmission of electricity; governmental, educational, medical services; scientific and research services as also workers in 'informal sector' activities like personal services, general and casual labourers who do not have any fixed place of work etc. Similarly 'Transport, storage and communication' can include workers/in transporting by man such as carrying of luggage, hand cart driving, rickshaw pulling, cycle rickshaw driving etc., etc. 'Trade and Commerce' encompasses all wholesale and retail trade.

/in transporting by air as well as

term, in a purely discriptive sense, as 'employment falling outside the organised sector'.[41]

The second problem is one of availability of data. Even with the limited, purely discriptive definition adopted for 'the informal sector', it is very difficult to arrive at any estimate of the workforce employed in this sector, from published sources.

In the absence of any such data we looked for some data on the socio-economic characteristics of the population -- or at least a section of the population -- in Madras city for the period 1961-71, which, along with the data on the workforce, would give us some clues as to the order of magnitude of workforce in the 'informal sector' in the city and the shifts that took place in it during the decade. The only such data we could lay our hands on were on the slum population in Madras city. Given that slum population accounts for a substantial proportion of the population in Madras city, and that a large section of the workforce residing in slums in Madras is employed in the so-called 'informal sector', an analysis of these data should give us some idea of rough order of magnitude -- or at least a lower-bound on it -- of the 'informal sector' employment and shifts in it.

Hence the next section is devoted to a study of the slum-population in Madras city.

VII SLUM POPULATION IN MADRAS CITY

Our attempt in this section is to answer the following questions:

1. What is the magnitude of slum population in the different zones of the city and how has it changed over the decade 1961-71?

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41. Harris, J; (1980).

2. What is the role played by migration in the growth of slums in the different zones of the city?

and 3. What is the nature of workforce residing in slums? Are there evidences to show that they are employed mostly in the 'informal' sector?

It is to be noted that these questions are sought to be answered only for Madras City; for lack of data the satellite towns have been left out. Our discussion in this section is based upon the data presented in three reports: 'Slums of Madras City', a report prepared for 1961 Census, and 'Socio-economic Survey of Madras Slums', a report prepared by the Tamil Nadu Slum Clearance Board (TNSCB) in 1975; the reference period for the survey, on which the latter report is based, appears to be 1971. A very brief account of slums in Madras in 1979 is provided at the end of this section: This is based on a report -- "An Economic Profile of the Urban Poor - Slum Dwellers of Madras" -- prepared by the Operations Research Group (ORG).

1. Growth of Slums in Madras city, 1961-71

Tables 24 and 25 provide the basic data on slums in the different zones of Madras city for the years 1961 and 1971. The tables point to the following important conclusions:

1. For the city as a whole, there has been a very rapid increase in the number of slums, as well as the slum-population, over the decade. Interestingly, the area under slums has not registered a rapid increase. The implications of this are clear: Slums, which already have a high population density to begin with, have in fact got more and more congested over the decade: The difference with respect to the non-slum areas are truly striking. The population density in the slums was nearly five times as high as that in non-slum areas in 1961; and this ratio had further deteriorated to 6.6 in 1971.

TABLE 24 : SLUMS IN MADRAS CITY, 1961 AND 1971

Zone	Number of slums 1961	Number of slums 1971	Slum area (acres) 1961	Slum area (acres) 1971	Slum population 1961	Slum population 1971	Slum area as a per cent of total area of the zone 1961	Slum area as a per cent of total area of the zone 1971
Manufacturing Zone	234 (42.70)	419 (34.89)	753.49 (40.62)	712.46 (36.91)	172093 (41.75)	333933 (45.28)	7.70	7.63
Trade and Commerce Zone	24 (4.38)	43 (3.58)	72.75 (3.92)	76.12 (3.94)	23613 (5.73)	22402 (3.04)	3.10	2.89
Old Residential Zone	152 (27.74)	286 (23.81)	524.25 (28.26)	418.12 (21.66)	128789 (31.25)	158521 (21.49)	7.85	6.31
New Residential Zone	138 (25.18)	453 (37.72)	504.61 (27.20)	723.78 (37.49)	87673 (21.27)	222675 (30.19)	3.87	5.31
Madras city	548 (100.00)	1201 (100.00)	1855.10 (100.00)	1930.48 (100.00)	412168 (100.00)	737531 (100.00)	5.83	5.99

Note: Figures in brackets give column percentage.

Contd....

Zone	Slum population as a per cent of total population of the zone		Annual growth rate of population between 1961 and 1971		Change in slum population as a per cent of change in the total population between 1961 and 1971
	1961	1971	Population in slums	Total population in the zone	
Manufacturing Zone	27.57	35.52	6.85	4.66	44.90
Trade and Commerce Zone	8.78	7.90	- 0.53	- 0.62	7.42
Old Residential Zone	23.92	23.87	2.10	2.19	22.28
New Residential Zone	29.44	38.30	9.77	6.44	52.31
Madras city	23.84	29.87	5.99	3.60	44.41

TABLE 25 : DENSITY OF POPULATION IN THE SLUMS OF MADRAS CITY, 1961 AND 1971

Zone	Density of population in slum areas (persons/acre)		Density of population in non-slum areas (persons/acre)		Density of population in all areas (persons/acre)	
	1961	1971	1961	1971	1961	1971
Manufacturing Zone	228.39	468.70	50.08	70.31	63.81	100.72
Trade & Commerce Zone	324.58	294.30	107.81	114.05	114.53	119.84
Old Residential Zone	245.66	379.13	66.55	81.37	80.61	100.15
New Residential Zone	173.74	307.66	16.77	27.77	22.84	42.62
Madras city	222.18	382.05	43.92	57.64	54.30	76.58

2. The most congested part of the city, viz., the Trade and Commerce Zone has the lowest 'incidence' of slums, both in 1961 and 1971. While the number of slums has increased rapidly in this zone in the decade 1961-71, the area under slums has done so only marginally, and the slum population has in fact remained stagnant, or has even registered a marginal decline. It appears that either the slum population in the zone has spread out to a larger number of smaller slums over the decade, or, while the population from some of the slums has moved out, fresh, smaller slums, have sprouted in the zone. It is noteworthy that the density of population in the slums has declined over the decade in this zone.

3. The Old Residential Zone, where the 'incidence' of slums is quite high, has seen, a decline in the area under slums, a substantial increase in the number of slums, and a moderate increase in the slum population. The density of population in the slums has registered a substantial increase. It appears that people have moved out from some of the slums in the zone, to a number of new, smaller, and more congested, slums within the zone itself, over the decade.

4. The Manufacturing Zone, and surprisingly, even the New Residential Zone have witnessed extremely rapid growth of slum population during the decade. In the Manufacturing Zone, it appears, a large number of new slums, which are very highly congested, have come up; but the slum area has declined. In the New Residential Zone, on the other hand, the 'incidence' of slums has increased in every sense of the term -- in terms of number, area, population and population density.

The last point noted above has an important implication for the pattern and nature of growth of Madras city: One often tends to think that the New Residential Zone represents the residential suburbs of Madras city; a zone where the highly placed 'white-collar' employees reside and commute to work from this zone to their officers in the Central Business District everyday. Thus, according to the 1961 Census, which, in fact, has provided this division of the city into four zones, the New Residential Zone consists of 'important suburbs' like Shenoynagar, Amminjikarai, Kodambakkam, T.Nagar, Alandur, Raja Annamalaipuram, Adyar, Saidapet and Guindy; and...'T.Nagar is a residential suburb where houses have been built on modern lines with open spaces all around....Adyar is developing rapidly into a fashionable high class suburb....', etc. While it may be true that a large number of highly-placed 'white collar' employees have in fact moved into this zone, a very large part of the growth in this zone, is accounted for by the growth of slum population.

'Suburbanisation' in the sense of development of fashionable, high-class suburbs, almost exclusively as the upper class residential areas, has not taken place in Madras.[42] What appears to have happened is that with increasing congestion in the central parts of the city and with increasing industrialisation of satellite towns, a large number of people belonging to the poorer strata of the population have settled in the outer fringes of the city: The phenomenon of the rapid growth of slums in the New Residential Zone is to be viewed as a part of the larger phenomenon of an 'outward shift' in the population -- of all classes of people, perhaps --, within the city as well as from the city to satellite towns.

Now, if the slum population has grown at such rapid rates in the Manufacturing Zone and the New Residential Zone, a large part of this growth must be due to migration. What role has migration played in the growth of slums in Madras city? What proportion of the migrant population in different zones of the city is accounted for by slum-migrants? These are the questions we turn to now.

2. Migrants in slums of Madras city

According to the 1961 Census there were 7008 migrant households in the slums of Madras city, which works out to just 7.2 per cent of the households in the slums. A household was treated as being a migrant one, if the head of the household was a migrant; a migrant was defined on the basis of place of last residence (and not on basis of place of birth as in the case of general population in the 1961 Census) and intra-city migration was also taken into account.[43]

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42. For a similar view, see Kurien (1971)

43. It is useful to quote, in detail, from the Census of India (1961g) "....Question 18 in Part II of the slum schedule relates to migration. It runs as follows: Question 18a -- What was the previous place of residence of the family? Give the name of the locality and the district. 18b-Did the family

contd...

The report of the Slum Clearance Board noted above says that the 'migrants constitute in all 68,274 families' in the slums of Madras city in 1971, which works out to 41.68 per cent of the families in the slums. The increase in the number of migrant households -- nearly a ten-fold one -- in the slums appears remarkable indeed. But part of this increase may be 'definitional': The report of the Slum Clearance Board, while identifying the migrant on the basis of last residence[44], has not clarified how a migrant family was identified, or whether intra-city migration was taken into account.[45]

Given this, we have to fall back, once again, upon some estimation, however crude, of the number of slum-migrants on the basis of birth and death rate data. For this, we have adopted the same procedure as we did for the estimation of

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move into the slum from outside the city or from other huts in the city? ...The migratory character of the members of the household was decided with reference to the head of the household. If the head of the household was a migrant, the entire household was also treated as migrant. The question was based on the previous place of residence of the head of the slum household and not on the place of birth. As such, only those households whose heads were born outside the city and who having moved into the city did not change the residence would not have figured as migrants...." (p.26).

44. Question number 13, in Part I of the questionnaire for the survey on which the report is based is as follows: If a migrant to the city specify the names of place, taluk, and district in which the previous residence is located. See TNSCB (1975); p 69.

45. The only reason why we can assume, perhaps, that the report of the Slum Clearance Board adopted the same 'definitions' as the 1961 Census is that the former says: "The migrants constitute in all 68,274 families... and the corresponding number in 1961 was 7,008 families ...."(p.19). On the other hand the report also says that 'migrant constitute ... 41.68 per cent of the total slum population', which is the same as the percentage of migrant families in the slum! This implies that any family with one or more migrants is considered a migrant family and hence makes any comparison with 1961 data meaningless.

migrants -- in the general population -- in the different zones of the city for the period 1961-71 (See p. 38). Needless to add, the same assumptions, and the caveats, as for that procedure apply here also. The results are summarised in table 26.

While the table is self-explanatory, the following two points are worth noting:

1. Slum-migrants, accounting for nearly 60 per cent of the total migrants, play a very prominent role in migration to the city.

2. Of the 4 zones in the city, in the two zones which have seen a large influx of migrants, viz., the Manufacturing Zone and the New Residential Zone, the role played by slum-migrants is very prominent. On the other hand, in the other two zones -- one of which has seen out-migration and the other has remained stagnant -- the role of slum-migrants does not appear to be important.

Now, if the slum-migrants play a very prominent role in the migration to the city -- and especially to its fast-growing zones -- one would imagine that the characteristics of the migrants would, to an appreciable degree, depend on the characteristics of the slum-population in Madras city. It is to this issue that we turn to now.

3. Characteristics of slum population in Madras city

As with the general population, it is only the occupational characteristics of the slum population that we shall be concerned with here. And here again we come up against some problems with nature of data in comparing the slum population in 1961 and 1971: The 1961 Census classifies the workers in slum areas according to 'nature of occupation'.[46]

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46. The broad categories adopted by the Census are: 0.Professional, technical and related workers; 1.Administrative, executive and managerial workers; 2. clerical and related workers; 3. Sales workers; 4. Farmers, fisherman, hunters, loggers and related workers; 5. Miners, quarrymen and related workers; 6. Workers in transport and communications; 7 & 8. Craftsmen, production process workers and labourers not elsewhere classified; 9. Service, post and recreation workers; 10. Workers not classifiable by occupation. These broad categories are then subdivided into 58 sub-categories in the census.

TABLE 26: ESTIMATED NUMBER OF SLUM-MIGRANTS INTO MADRAS CITY, 1961-71

Zone	Estimated number of migrants		Migrants into (out of) slum areas of the zone as a per cent of total migrants into (out of) the zone
	Slum areas	non-slum areas	
Manufacturing Zone	+ 102654	+ 94188	52.15
Trade and Commerce Zone	- 6101	- 57288	10.65
Old Residential Zone	+ 1528	+ 15931	9.59
New Residential Zone	+ 109346	+ 82049	57.13
Madras city	+ 207427	+ 134880	60.60

Note: The estimates include intra-city migrants also.

and not by the standard 'industrial categories'. The 1971 data, on the other hand, provide the classification with respect to standard 'industrial categories' and not according to the 'nature of occupation'. With the level of disaggregation at which the data are available it is practically impossible to convert the data classified according to 'nature of occupation' into one classified by 'industrial categories', or vice versa. So, we do not attempt any comparison of 1961 slum workforce with the 1971 slum workforce here: Our attempt here will be to see if we have sufficient evidence to say whether a large proportion of the slum workforce is employed either in the 'informal' or in the 'formal' sector in 1961, as well as in 1971.

Let us first turn to the characteristics of slum population in 1961. The occupational classification of this population (for 1961) is provided in table 27. An important point that emerges from the table is the difference between the slum areas and non-slum areas in terms of the occupational pattern of the workforce: Occupations which can be characterised as 'white-collar' ones -- like 'professional, technical and related workers', 'administrative, executive and related workers', 'clerical and related workers' and 'sales workers' -- account for a much larger proportion of the workforce in the non-slum areas (47.12 per cent) than in the slum areas (16.28 per cent). On the other hand, the proportion of workers in the category 'craftsmen, production process workers and labourers not classified elsewhere' is much higher in the slum areas (59.07 per cent) than in the non-slum areas.[47] Now, a very large proportion -- nearly 53 per cent -- of the workers in the above category -- 'craftsmen, production process workers

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47. The data, as given in table 27, are not strictly comparable for the slum areas and non-slum areas because while the data for the non-slum areas relate to workers other than cultivators, the data for the slum areas relate to all workers. But given the fact that cultivators account for a very small proportion of the workforce in Madras city, this difference in coverage should not matter for meaningful comparisons.

TABLE 27: NATURE OF OCCUPATION OF WORKERS IN SLUM & NON-SLUM AREAS OF MADRAS CITY, 1961

Nature of occupation	Slums in Madras city			Non-slum areas of Madras city			Total for the city		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
0. Professional, technical & related workers	2733 (2.18)	2051 (1.78)	682 (6.64)	36812 (9.18)	25598 (7.12)	11214 (26.94)	39545 (7.51)	27649 (5.82)	11896 (22.92)
1. Administrative, executive & related workers	699 (0.53)	657 (0.57)	12 (0.12)	19304 (4.81)	18802 (5.23)	502 (1.21)	19973 (3.79)	19459 (4.10)	514 (0.99)
2. Clerical & related workers	8879 (7.07)	8729 (7.57)	150 (1.46)	81722 (20.37)	78266 (21.77)	3456 (8.30)	90601 (17.20)	86995 (18.32)	3606 (6.95)
3. Sales workers	8156 (6.50)	6798 (5.90)	1358 (13.23)	51201 (12.76)	48117 (13.38)	3084 (7.41)	59357 (11.27)	54915 (11.57)	4442 (8.56)
4. Farmers, fishermen, hunters, loggers & related workers	7195 (5.73)	7074 (6.14)	121 (1.18)	4106 (1.02)	3773 (1.05)	333 (0.80)	11301 (2.15)	10847 (2.28)	454 (0.87)
5. Miners, Quarrymen & related workers	6 (----)	6 (----)	Nil (0.00)	23 (-.--)	23 (---)	Nil (0.00)	29 (---)	29 (---)	Nil (0.00)
6. Workers in transport & communications	8208 (6.54)	8176 (7.09)	32 (0.31)	20473 (5.10)	19996 (5.56)	477 (1.15)	28681 (5.45)	28172 (5.93)	509 (0.98)
7&8. Craftsmen, production process workers & labourers not classified elsewhere	74156 (59.07)	69456 (60.25)	4700 (45.78)	137381 (34.25)	127469 (35.46)	9912 (23.81)	211537 (40.16)	196925 (41.48)	14612 (28.16)
9. Service, sport & recreation workers	15043 (11.98)	11839 (10.27)	3204 (31.21)	49166 (12.26)	36577 (10.17)	12589 (30.24)	64209 (12.19)	48416 (10.20)	15743 (30.43)
10. Workers not classifiable by occupation	508 (0.40)	502 (0.43)	6 (0.06)	943 (0.24)	884 (0.25)	59 (0.14)	1451 (0.28)	1386 (0.29)	65 (0.13)
TOTAL	125553 [illegible]	115287 [illegible]	10266 (100.00)	401131 (100.00)	359506 (100.00)	41626 (100.00)	526684 (100.00)	474793 (100.00)	51891 (100.00)

Note: Figures in brackets give column percentage.

and labourers not classified elsewhere' -- fall under 'labourers not classified elsewhere' in the slum areas. In fact this specific category, which is also known as 'general labourers' in the Census, tops the list (among all the 58 occupational sub-categories adopted by the Census) in the case of slum areas. As the Census notes: "Among men, 'General Labourers' top the list /in terms of occupational distribution of slum dwellers7 followed by unskilled office workers like peons, then by construction workers and then by fishermen. Among women, general labourers occupy the first place followed by domestic servants like cooks and maids and then by cleaners and sweepers...."; and then concludes: "....The conclusion is obvious. The slum dwellers are engaged in odd jobs involving heavy manual labour or petty occupations...."[48]

Thus, there is strong evidence to say that in 1961 the workforce in the slums in Madras city was mostly employed in what may be called the 'informal sector'. Apart from the data given above (in table 27) there are some indirect evidences also to prove this: One such set of data is given in table 28 which gives the distance of workspot from residence for workers in slums in Madras city in 1961: It is striking that nearly 40 per cent of this workforce had no 'fixed workspot', a clear index of the large magnitude of informal sector employment.

Other indirect evidences -- on the educational level, level of income etc. -- provided by the Census also support the above hypothesis that a very large proportion of the slum workforce is employed in the 'informal sector' -- where the level of skill employed, as well as the income earned, is low.[49]

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48. Census of India (1961 g); p.45.

49. See Census of India (1961 g) p.38; and Chs V & VI (for level of earnings, occupation, housing etc.).

TABLE 28 : DISTANCE OF WORKSPOT FROM RESIDENCE FOR WORKERS IN SLUMS, 1961

Distance in miles	Number of workers
Less than ½ mile	18455 19.79)
½ - 1 mile	10578 11.34)
1 - 2 miles	4565 (4.90)
2 -- 3 miles	7961 (8.54)
3 - 5 miles	7348 (7.88)
5 miles and above	5624 (6.03)
No fixed place	38727 (41.53)
Total	93258 (100.00)

Note: 1. 'Number of workers' refers to the head of the household if he is a worker; if the head of the household is not a worker, it refers to the principal worker of the household.

2. Figures in brackets refer to column percentages.

Source: Census of India (1961 g); p.86.

The data given above, while indicating that a large proportion of the workforce in the slum areas of Madras in 1961 was in the 'informal sector', do not give us any idea about the magnitude of this employment in the 'informal sector'. This is because the data as given in table 27 above refer to broad occupational categories each of which may, in fact, encompass both formal and informal sector activities. In order to arrive at an 'estimate', however rough, of the workforce in the informal sector in 1961 in the slums of Madras, we made use of the data on the detailed occupational classification -- on the basis of 58 occupational sub-categories -- of this workforce, given in 1961 Census. A regrouping of this data provided the following picture, given in <u>table 29</u>. The scheme adopted for regrouping of these 58 occupational sub-categories -- i.e., the sub-categories falling under each of the broad divisions given in the table -- is given in <u>Annexure 5</u>.

<u>TABLE 29 : NATURE OF OCCUPATION OF WORKERS IN SLUMS OF MADRAS CITY, 1961</u>

Broad occupational categories	Number of workers
Industrial workers	15272 (12.16)
'White collar' workers (with stable employment)	7116 (5.67)
Total organised sector	22388 (17.83)
Primary sector workers	5963 (4.75)
General labourers	39464 (31.43)
'Informal sector'	57738 (45.99)
Total unorganised sector	103165 (82.17)
Total	12553 (100.00)

<u>Note</u>: Figures in brackets give column percentages.

The table indicates that a very large proportion -- more than three-fourths -- of the workers in slums in Madras city in 1961 were in the 'unorganised sector'.

Let us now turn to the characteristics of slum population in 1971. As already noted the TNSCB report for 1971 does not classify the slum workforce on the basis of occupational classification. It does so on the basis of the 'industrial categories', and this data are summarised in table 30.

The table shows that 3 categories -- manufacturing industry, transport and communications and trade and commerce -- account for a very large proportion, nearly 83 per cent, of the workforce in the non-slum areas; the corresponding figure for the slum areas is much lower, at 32 per cent. On the other hand, the category 'other services' accounts for nearly 56 per cent of the workforce in the slum areas, and for only about 10 per cent in the non-slum areas. Now, in so far as the former 3 categories represent more 'organised', 'formalised' sectors and the latter -- 'other services' -- represents more 'personalised', 'informal' activities, the difference between the slum areas and the non-slum areas in terms of the relative importance of the 'informal sector' in each, is clear. A very large proportion of the workforce in the slums employed in 'other services', coupled with other facts -- like the proportion of workers without any fixed workspot, the level of education, the income levels[50] etc. -- clearly point to the fact that a large

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50. See TNSCB (1975), p.28 (for workers without any fixed workspot), p.22 (for education levels), p.29 (for income levels) etc. According to this report in 1971, only about 21 per cent of the slum workers had no fixed workspot; we may recall that the corresponding percentage for 1961 was much higher, at 42 per cent. Does it indicate any trend towards greater 'formalisation' of the activities pursued by workers in slums?

TABLE 30 : COMPOSITION OF LABOUR FORCE IN SLUM AND NON-SLUM AREAS OF MADRAS CITY, 1971

Industrial category	Slums in Madras city			Non-slum areas of Madras city			Total for the city			Workers in slums as a per cent of total workers in the city		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
1. Cultivators & agricultural labourers	152 (0.07)	142 (0.08)	10 (0.05)	1558 (0.31)	1321 (0.29)	237 (0.64)	1710 (0.25)	1463 (0.23)	247 (0.41)	8.89	9.71	4.05
2. Mining, fishing, quarrying etc.	5162 (2.57)	5065 (2.84)	97 (0.44)	3984 (0.80)	3895 (0.85)	89 (0.24)	9146 (1.31)	8960 (1.41)	186 (0.31)	56.37	56.53	52.15
3. Household industry	5762 (2.87)	4495 (2.52)	1267 (5.70)	5409 (1.09)	5074 (1.11)	335 (0.90)	11171 (1.60)	9569 (1.50)	1602 (2.69)	51.58	46.97	79.09
4. Manufacturing industry	20769 (10.35)	20227 (11.34)	542 (2.44)	158717 (32.01)	153818 (33.55)	4899 (13.13)	179486 (25.77)	174045 (27.33)	5441 (9.14)	11.57	11.62	9.96
5. Construction	12914 (6.44)	11951 (6.70)	963 (4.33)	20583 (4.15)	19116 (4.17)	1467 (3.93)	33497 (4.81)	31067 (4.88)	2430 (4.08)	38.55	38.47	39.63
6. Transport and communications	22922 (11.42)	22778 (12.77)	144 (0.65)	106412 (21.46)	101500 (22.14)	4912 (13.17)	129334 (18.57)	124278 (19.52)	5056 (8.49)	17.72	18.33	2.85
7. Trade and Commerce	20873 (10.40)	16833 (9.44)	4035 (18.14)	148658 (29.99)	144257 (31.47)	4401 (11.80)	169531 (24.34)	161095 (25.30)	8436 (14.17)	12.31	10.45	47.83
8. Other services	112066 (55.88)	96880 (54.31)	15186 (68.25)	50438 (10.17)	29476 (6.43)	20962 (56.20)	162504 (23.34)	126356 (19.84)	36148 (60.71)	68.96	76.67	42.01
Total	200620 (100.00)	178376 (100.00)	22244 (100.00)	495759 (100.00)	458457 (100.00)	37302 (100.00)	696379 (100.00)	636833 (100.00)	59546 (100.00)	28.81	28.01	37.36

Note: Figures in brackets give column percentages.

Source: Census of India (1971 b); & TNSCB (1975).

proportion of this workforce is in the so-called 'informal sector', even in 1971, although any quantification of this workforce is not possible given the limitations of the data.

4. Slums in Madras city in 1979

As just noted, while we could 'estimate' that close to 75 per cent of the slum workforce in 1961 was in the 'informal sector', no such 'estimation' was possible for 1971 because of the limitations of the data. Fortunately, the data available for a later year, viz., 1979, on the basis of a sample survey conducted by the ORG,[51] allow us to do so, again, however roughly. The main points that come out from the ORG report are summarised below:

1. The estimated slum population in 1979 in Madras city was 11.06 lakhs. This gives an annual compound growth rate of 5.2 per cent[52] for the slum population between 1971-79. Note that this is more than double the annual growth rate for the population of Madras city for the decade 1971-81 (which is 2.41 per cent). Thus it appears that like the sixties, the seventies has also been a period when a large scale influx of slum population into Madras city took place.

2. The survey data on the employment status of slum workers is given in table 31. As is clear from the table only about one-fifth of the workforce comes under the category 'employee--organised sector'; and more than 70 per cent of the workforce is accounted for by 'employee-unorganised sector' and 'self-employed (non-establishment)'. As the last two categories can be largely said to consist

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51. See ORG (1980).

52. Even this figure, if anything, appears to be an underestimate. This is because one of the premises underlying this estimation was that 'number of slum locations are same as (in) 1971 ....' Going by the trend in the previous decade when there was a more than doubling of the number of slums, this assumption, which does not appear to be true, should introduce some underestimation in the estimate.

of informal sector activities,[53] we may say that close to 70 per cent of the slum workforce was in the informal sector in 1979. This statement gets re-inforced by the data thrown up by the survey regarding the skill levels and income of slum workers; skilled workers constitute only 10 per cent of the slum workforce; as much as 66 per cent belong to the unskilled category and the rest to the semi-skilled group.[54] It is also noteworthy that as much as

TABLE 31 : DISTRIBUTION OF SLUM WORKERS BY EMPLOYMENT STATUS, MADRAS CITY, 1979

Category	Number of workers	Percentage of total workers
1. Employer and owner of family enterprises	13460	4.02
2. Employee-organised sector	72580	21.69
3. Employee-Unorganised sector	72770	21.74
4. Family workers	8530	2.55
5. Self-employed (non-establishment)	167400	50.01
Total	334740	100.00

Source: ORG (1980), p.36, table 3.1.

53. For definitions of these categories, see ORG(1980),p.4(

54. The ORG also conducted a pilot survey in 4 slums located in the satellite towns of Madras Urban Agglomeration. A comparison of the characteristics of workers in these slums with those of city slums is interesting: The workforce in these slum consisted mostly of 'employees' -- with the organised sector employees accounting for 31.7 per cent (as against 21.7 in the city slums) and the unorganised sector for 40.6% (21.7%); the per cent of workers in 'self-employed (non-establishment)' group was much lower at 26.7% than in the city slums (50.0%). The workers in these slums also appeared to have a better skill level: 18.4% were highly skilled (as against 10.3% in the city slums), 27.5% were semi-skilled (24.1%) and 54.1% were unskilled (65.6%).These observations lend some evidence to a point made earlier by us:While a large proportion of the migrants into Madras city appears to be workers in the tertiary sector -- especially the informal sector - activities, the satellite towns appear to have a larger proportion of industrial workers among their migrants.

38.6 per cent of the slum workforce had no fixed location as workspot.[55]

5. Concluding observations

Two important points emerge from our discussions in this section:

1. A large proportion of the migrants in Madras city are slum-migrants. While this proportion is about 60 per cent in the sixties, there is no reason to believe it is lower in the seventies: Given that the differential between the growth rates of slum population and of the total population was higher in the seventies than in the sixties, this proportion, if anything, appears to be higher in the seventies.

2. A very large proportion of the workforce in the slums is in what is referred to as the 'informal sector'. This proportion appears to be close to three-fourths both in 1961 and in 1979.

These two points link up with the question we had raised in the beginning of the previous section: Is there any evidence to say that a significant proportion of the migrant workforce to Madras city constitute workers in the 'informal sector'? The answer to this question, it appears, is in the affirmative: One can say that at least 40 per cent of the migrant workforce into the city during the sixties and seventies are workers in the 'informal sector'.[56]

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55. See ORG (1980); table B.4 in Appendix B, p (xiv).

56. This figure -- 40 per cent -- is strictly valid only under certain assumptions like: a) The workers participation rates for the slum migrants is the same as that for slum population & b) The proportion of workers in the 'informal sector' is also the same for slum population & migrants among the slum population. While the first assumption appears to be valid as the data given by the Censuses show regarding the second assumption we can only say that <u>prima facie</u> one would expect that a <u>larger</u> proportion of the migrants among the slum population would be in the informal sector than the general slum population -- This would, in fact, make our estimate an underestimate. There is another reason why our estimate may be an underestimate: It does not include workers in informal sector among non-slum migrants.

VIII CONCLUDING OBSERVATIONS

Let us now summarise the broad, preliminary 'results' -- more appropriately, 'hypotheses' which have to be tested out with more direct, reliable data for the purpose at hand than the census population data -- that have emerged from our study so far.

1. The first relates to the growth pattern of Madras city and its satellite towns over time: The city has not grown at a uniform pace over time; there were decades of stagnation and decades of rapid growth. In particular, the decade of 40s was a period of rapid growth for the city; and after this period of rapid growth the emphasis in growth was shifted to a) outlying, peripheral areas of the city and b) to satellite towns. We may also note that this outward shift of population cannot be construed as part of a process of 'suburbanisation', so to say.

2. Related to the above point is the other 'hypothesis' Migration to an urban area appears to take place in 'waves', as it were. The largest such 'wave' of migrants into Madras city took place in the 40s. The decades after this -- the 50s and the 60s -- perhaps even saw some amount of 'reverse migration' from the city to satellite towns, one of the factors responsible for the rapid growth of satellite towns in these decades.

3. While a section of the migrants who moved into the city in the 40s moved out at a later stage to the satellite towns, even the earlier 'wave' (of the 40s) does not appear to have taken place as a one-shot event where the migrants left their initial place of residence and moved straight to the city: There is some evidence, even in terms of patterns of population shifts over time, for 'step-migration'. Thus a section of the migrants, at least, would be characterised by some degree of 'footlooseness' in terms of their geographical movements.

4. This 'footlooseness' in terms of geographical movements, it appears, is not unrelated to 'footlooseness' in terms of occupational characteristics of the migrants. It appears that a large proportion of the migrants in Madras city in the 60s consists of workers in the tertiary sector -- especially in the so-called 'informal sector'. In the satellite towns -- especially in the fast-growing ones where industrialisation provides the thrust for growth -- on the other hand, migrants in this period appear to consist largely of industrial workers, with tertiary sector workers -- perhaps again in the 'informal sector' -- coming a close second. It also appears that in the decade of 40s when industrialisation of the city appears to have acted as a major 'pull' factor in attracting migrants to the city, the migrant-stream to the city consisted largely of industrial workers.

5. The points that we have noted above -- the growth pattern of the city and satellite towns; pattern and nature of migration; 'footlooseness' of migrants, or at least a section of them, in terms of geographical movement and occupation; factors underlying the growth of the city and satellite towns etc. -- when pieced together give us a picture of migration over time. And this is a picture which depicts migration as a process, rather than as a one-shot event, involving shifts in geographical and occupational patterns, underlying which are certain basic processes -- like industrialisation or a lack of it, say -- imparting a thrust to -- or holding back -- the growth of an urban area as such. In response to a major thrust in industrialisation in the city in 40s, a wave of migration -- perhaps largely of industrial workers -- took place, this wave in itself being a culmination, as it were, of a series of 'steps' where the population shifted from its initial place of residence to one or more small towns etc. As the emphasis in industrialisation shifted to the satellite towns in the later decades a part of this population -- which perhaps had

acquired certain industrial skills by now -- would have shifted from the city to the satellite towns. Apart from this there appears to be another stream of migrants -- with little skills or capital -- who come into the city, find it difficult to get a job in the 'organised sector', and hence swell the so-called 'informal sector'. This stream, being very 'footloose', is also likely to move into satellite towns from the city as the city gets increasingly congested and the going gets hard for these poor people.

It is far from our contention that the two streams outlined above complete the 'picture': Needless to say, a number of other streams of migrants -- migrants of varying characteristics -- form part of this picture: Like say, the stream of migrant from satellite towns to the city, from a small town in a contiguous district to a satellite town, direct migration from a small town to Madras city, etc. The picture, obviously, is a very complex one, involving constant shifts and changes. And this is precisely the point we are trying to make, however weakly : Migration has to be viewed as a process, involving shifts and changes over time.

Let us end with a caveat--one which we are never tired of repeating --, and hence, also a comment on further course of research on this topic: This caveat relates to the nature of data. The picture we have given above is to be taken as far from being 'established'; it is just a 'hypothesis', but with some empirical backing. Given the nature of data we have used -- on which we have talked again and again earlier -- we could not possibly go beyond establishing such a 'hypothesis'. The next task, we believe, would be to test out this 'hypothesis', as it were, with more direct and more reliable -- for the purpose at hand -- data. This is what we hope to do in two of our subsequent papers, one based on census migration data and the other on a small survey we conducted in Madras Urban Agglomeration.

ANNEXURE - 1

SATELLITE TOWNS IN MADRAS URBAN AGGLOMERATION, 1971

1. Alandur
2. Ambattur
3. Anakaputhur
4. Avadi
5. Chithalpakkam
6. Erukancheri
7. Kannapalayam
8. Kathirvedu
9. Kathivakkam
10. Kattupakkam
11. Kodambakkam
12. Kodungaiyur
13. Koyambedu
14. Kunrathur
15. Madhavaram
16. Madipakkam
17. Mathur
18. Meenambakkam
19. Melmanambedu
20. Mudichur
21. Nadukkuthagai
22. Naravarikuppam
23. Nazarethpettai
24. Nemilicheri
25. Nerkundram
26. Oragadam
27. Pallavapuram
28. Pallikaranai
29. Pammal
30. Peerkankaranai
31. Perungalathur
32. Perungudi
33. Polal
34. Polichalur
35. Poovirundhavalli
36. Sadayankuppam
37. Saligramam
38. Sembarambakkam
39. Sennirkuppam
40. Soranjeri
41. St. Thomas Mount-cum-Pallavaram
42. Tambaram
43. Thirumangalam
44. Thirumazhisai
45. Thiruneermalai
46. Thiruninravur
47. Thirusulam
48. Thiruvanmiyur
49. Thirvattiyur
50. Thiruverkadu
51. Vallanur
52. Varadharajapuram
53. Veeraragavapuram
54. Velacheri
55. Vengavasal
56. Villivakkam
57. Virugambakkam.

Source: Census of India (1971 a)

ANNEXURE - 2

THE FOUR ZONES IN MADRAS CITY, 1961

Industrial Zone (Zone 1)

"It is bounded on the east by the sea and the north by Tiruvottiyur Municipal Town which has developed urban characteristics similar to the city proper. The boundary between the city and Tiruvottiyur cannot be identified easily. It is the prominent industrial area of the city. It has the Burmah Shell, Esso and Caltex Oil Cos. with their installations. The important industrial establishments are -- Buckingham and Carnatic Mills, Railway Integral Coach Factory and Railway Workshop. The Thermal Power Station and Basin Bridge, Royapuram and Tondiarpet Railway Stations are located in this area. Close to the sea are located fishermen kuppams or cheris. The rest of the slums house the industrial labour of the zone...."

Commercial Zone (Zone 2)

"It is bounded on the east by the sea. A major part of it is Black Town, now called George Town, which along with Fort forms the oldest element in the city's composition. Its highly favourable location close to the harbour and railway terminus encouraged the more and more intense use of the area for commercial purposes and steady expansion thereby forcing the residents to move further and further outwards. Large business and commercial houses are located in this zone. The China Bazaar, the most congested thoroughfare, the Kothwal Chavdi, the key market from which commodities flow to other markets in the city, the Harbour, the Central Railway Station, the Moore Market, the Government Hospital and the High Court are located in this zone. It is overcrowded with practically no open space and no change in the internal structure of the zone can be contemplated."

Old Residential Zone (Zone 3)

"In this are included Purusawalkam, Vepery, Kilpauk, Chetpet, Egmore, Nungambakkam, Triplicane and Mylapore. Triplicane is a crowded locality and owes its fame to ancient Sri Parthsarathi temple. Mylapore and Santhome are also places of antiquity. The former is noted for its ancient temple of Kapaleeswarar and the latter for the Santhome Cathedral. The important landmarks in the zone are Egmore Railway Station, Fort, Secretariat buildings, the Chepauk Public Offices, the Island ground, the University buildings and the famous Marina beach."

The New Residential Zone (Zone 4)

"This is a crescent shaped girdle which sprawls from the Elliots beach in the south-east to the eastern boundary of Villivakkam, a Class I panchayat in the north west. This is in continuation of the old residential area -- Zone 3 -- in the west and the south. The important suburbs in the zone are Shenoynagar, Amminjikarai, Kodambakkam, T.Nagar, Alandur, Raja Annamalaipuram, Adayar, Saidapet, and Guindy. Kodambakkam is famous for film industry as well as for Vadapalani temple dedicated to Lord Muruga. T.Nagar is a residential suburb where houses have been built on modern lines with open spaces all round. In Guindy, the recently built Government Industrial Estate, the Madras Race Club and the spacious Raj Bhavan campus with Gandhi Memorial Mantap are found. Adyar is developing rapidly into a fashionable high class suburb......"

Source: Census of India (1961 g); pp12 & 13.

ANNEXURE-3: CLUSTERS IDENTIFIED IN DIFFERENT ZONES OF MADRAS CITY, 1961 and 1971

INDUSTRIAL ZONE

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq. kms)	Area in 1971 (sq.kms)	Population in 1961	Population in 1971 'actual'	Population in 1971 'corrected'*
1.	New Washermanpet; Korukupet; Kumaraswamy Nagar; Dr.Vijayaraghavalu Nagar	Dr.Radhakrishnan Nagar; Jeeva Nagar; Cherian Nagar; Korukupet; Kumaraswamy Nagar; Dr.Vijayaraghavalu Nagar	8.37	7.64	79638	163656	179293
2.	Tondiarpet; Grace Garden; Singara Garden	Tondiarpet; Ma-Po-Si Nagar; Grace Garden; Singara Garden	2.12	1.83	50447	78376	90796
3.	Sanjeevirayonpet; N.N.Garden	Sanjeevirayonpet; N.N.Garden	0.59	0.46	28782	37936	48657
4.	Mottai Garden	Mottai Garden	0.28	0.19	13754	17717	26109
5.	Royapuram; Meenakshiammanpet	Royapuram; Meenakshiammanpet	1.30	0.98	36664	34320	45527
6.	Old Washermanpet	Old Washermanpet	0.46	0.42	14324	21795	23871
7.	Seven Wells (N)	Seven Wells (N)	0.23	0.22	16908	18931	19792
8.	Amman Koil (N)	Amman Koil (N)	0.13	0.21	13353	16233	10049
9.	Basin Bridge; Kondithope	Basin Bridge; Kondithope	0.92	0.94	29695	40555	39692
10.	Perambur	Elango Nagar;Perambur	2.23	2.59	22886	59982	51645

*Population for 1961 area.

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq.kms)	Area in 1971 (sq.kms)	Population in 1961	Population in 1971	
						'actual'	'corrected
11.	Wadia Nagar; TVK nagar	Wadia Nagar; TVK nagar	2.30	2.44	33961	45916	43281
12.	Vyasarpadi; Pulianthope; Pattalam; Thattankulam; Dr.Besant Nagar; Choolai; Hospital Maidan; Nammalwarpet; Otteri; Kosapet; Perumalpet.	Kosapet; Perumalpet; Kannappan Nagar; Anbazhagan Nagar; Choolai; Vyasarpadi; Sathyavanimuthu Nagar; Pulianthope; Dr.Besant Nagar; Pattalam; Thattankulam; Pannerselvam Nagar; Maraimalai Adigal Nagar; Anjugam Ammaiyar Nagar.	8.32	8.44	190309	268007	264196
13.	Sembium; Siruvallur; Agaram; N.A. Nagar; Ayanavaram.	Sembium; Agaram; Siruvallur; V.G.Nagar; N.A.Nagar; Ayanavaram.	11.82	10.95	93432	136828	147699
Total (for the Industrial Zone)	--	--	39.07	37.31	624153	940252	984606

ANNEXURE-3 COMMERCIAL ZONE

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq.kms)	Area in 1971 (sq.kms)	Population in 1961	Population in 1971 'actual'	Population in 1971 'corrected'
1.	Muthialpet	Muthialpet	0.20	0.20	15584	16512	16512
2.	Mannady; Amman Koil (S); Seven Wells (S)	Mannady; Amman Koil (S); Seven Wells(S)	0.51	0.51	38394	46371	46371
3.	Sowcarpet; Kothwal Chavdy	Sowcarpet; Kothwal Chavdy	0.53	0.53	24840	24999	24999
4.	Peddunaickanpet; Permal Koil Garden; Travelyan Basin; Elephant Gate; Edapalayam; Park Town; Periamet.	Peddunaickanpet; Perumal Koil Garden; Elephant Gate; Netaji Nagar; Edapalayam; Park Town; Periamet.	2.94	2.96	108343	111420	110667
5.	Harbour; Kachaleeswarar; Adikeshavapuram; Chintadripet; Nehru Nagar.	Vallal Seethakathi Nagar; Kachaleeswarar; Adikeshavapuram; Chintadripet; Nehru Nagar.	5.20	6.34	81640	84403	69226
TOTAL (for commercial zone)	--	--	9.38	10.54	268801	283705	252481

ANNEXURE-3 OLD RESIDENTIAL ZONE

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq.kms)	Area in 1971 (sq.kms.)	Population in 1961	Population in 1971 'actual'	Population in 1971 'corrected'
1.	Purushwalkam	Purushwalkam	0.46	0.42	15088	16341	17897
2.	Kilpauk; Chetpet; Nungambakkam; Egmore.	Kilpauk; Chetpet; Nungambakkam; Egmore	5.94	5.88	70323	80203	81021
3.	Sevagram; Thousand Lights (W); Thousand Lights(E)	Thousand Lights; Azhagiri Nagar; Ko-Su-Mani Nagar	3.64	4.10	46870	59738	53036
4.	Pudupakkam	Balasubramaniam Nagar	0.20	0.22	14666	19260	17509
5.	Royapettah	Royapettah	0.41	0.42	16032	16892	16490
6.	Gangadhareshwarar Koil	Gangadhareshwarar Koil	0.46	0.47	15080	16579	16226
7.	Ambedkar Nagar	Ambedkar Nagar	0.90	0.90	15506	18290	18290
8.	Pudupet; Komaleeswaranpet; Narasingapuram	Pudupet; Komaleeswaranpet; Narasingapuram	1.71	1.87	44665	49493	45259
9.	Tiruvattiswararpet; Chepauk; Marina; Triplicane	Tiruvattiswaranpet; Chepauk; Dr.Natesan Nagar; Triplicane Marina	1.85	1.84	66938	84581	85041
10.	Zam Bazar; Mirsahibpet; Azad Nagar; Amir Mahal	Zam Bazar; Umarupulavar Nagar; Bharathi Nagar; Azad Nagar; Amir Mahal	1.92	1.65	73626	94888	110415

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq.kms)	Area in 1971 (sq.kms)	Population in 1961	Population in 1971	
						'actual'	'corrected'
11.	Durga Puram; Krishnampet	Bharathidasan Nagar; Krishnampet	1.13	1.18	28192	39645	37965
12.	Tynampet; Alwarpet	Tynampet; Alwarpet	3.10	2.68	34086	41999	48581
13.	Vivekanandapuram; Madhavaperumalpuram; Karaneeswarapuram; Santhome; Mylapore; Bhimannapet.	Vivekanandapuram; Madhavaperumalpuram; Karaneeswarapuram; Santhome; Mylapore; Tiruvalluvar Nagar; Bhimannapet.	4.97	4.87	97235	126170	128761
TOTAL (for old Residential Zone)	--	--	26.69	26.50	538357	664079	668840

ANNEXURE-3 NEW RESIDENTIAL ZONE

Sl. No.	Divisions in the cluster identified in 1961	Divisions in the cluster identified in 1971	Area in 1961 (sq.kms)	Area in 1971 (sq.kms.)	Population in 1961	Population in 1971 'actual'	Population in 1971 'corrected'
1.	Shenoynagar	Anna Nagar; Shenoy Nagar	6.12	6.72	21450	57326	52208
2.	R.A.Puram	R.A.Puram; Avvai Nagar;	5.12	4.37	24140	47786	55987
3.	Adayar	Adayar	5.02	5.71	14086	29106	25589
4.	Amminjikarai	Amminjikarai; Periyar Nagar	4.99	4.80	31663	64689	67250
5.	Vadapalani	Navalar Neduchezhian Nagar; Vadapalani	2.79	3.42	30461	63222	51576
6.	T.Nagar	Kalaivanar Nagar; T.Nagar	1.59	1.85	22508	34187	29382
7.	Sathyamurthy Nagar	Sathyamurthy Nagar; Nakeerar Nagar	1.97	2.39	23277	42741	35230
8.	Rajajinagar; Periapet	Rajajinagar; K.K.Nagar; Va-Va-Si Nagar	2.28	2.17	41114	60703	63780
9.	Kamaraj Nagar; Saidapet (N)	MGR Nagar; Kamaraj Nagar; Kumaran Nagar; Saidapet	4.74	5.43	44249	118328	103292
10.	Guindy; Saidapet	GD Naidu Nagar; Guindy	17.51	17.62	44882	63325	62930
TOTAL (for New Residential Zone)	---	---	52.13	54.52	297830	581413	555925
TOTAL (Madras city)	---	---	127.27	128.87	1729141	2469449	2461852

ANNEXURE-4 : ANNUAL GROWTH RATES FOR MALE AND FEMALE WORKERS IN DIFFERENT INDUSTRIAL CATEGORIES IN MADRAS CITY, 1961-71

Zone	Annual compound growth rate of the workforce														
	Cultivators			Agricultural labourers			Livestock, forestry, mining etc.			Household industry			Manufacturing industry		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Manufacturing Zone	14.10	39.55	15.91	15.69	49.29	22.00	3.39	-2.64	3.28	0.98	-7.15	-1.08	3.06	3.46	3.0
Trade and Commerce Zone	69.78	--	74.41	-2.21	-12.94	-2.51	-3.59	-10.40	-4.07	0.94	-12.82	-1.46	-0.64	1.16	-0.6
Old Residential Zone	33.08	31.95	32.16	6.95	--	8.12	1.75	1.04	1.73	0.05	-11.49	-2.26	2.97	7.34	3.0
New Residential Zone	28.06	--	28.64	17.84	21.77	18.90	5.51	- 6.60	4.87	0.25	-8.53	-1.45	7.53	6.18	7.4
Madras city	24.96	43.49	25.61	10.27	30.81	13.17	2.70	-3.20	2.55	0.58	-8.64	-1.48	3.37	4.71	3.4

Note: The high values of growth rates in the case of 'cultivators' and 'agricultural labourers' is basically because of extremely low bases in 1961.

Zone	Annual compound growth rate of the workforce											
	Construction			Trade & Commerce			Transport, storage & communications			Other services		
	M	F	T	M	F	T	M	F	T	M	F	T
Manufacturing Zone	3.29	3.77	3.32	6.81	2.12	6.44	8.27	11.54	8.35	-1.70	1.11	-1.12
Trade & Commerce Zone	-3.44	-4.80	-3.52	1.05	3.02	1.10	1.09	4.13	1.17	-7.07	-4.06	-6.60
Old Residential Zone	1.92	2.36	1.94	5.03	2.98	4.91	5.68	9.59	5.83	-2.89	-0.44	-2.36
New Residential Zone	7.89	4.89	7.64	9.39	8.11	9.31	13.24	18.75	13.48	0.39	2.42	0.77
Madras city	4.00	3.57	3.97	5.26	3.52	5.16	7.45	11.66	7.58	-2.24	0.32	-1.73

ANNEXURE-5: NATURE OF OCCUPATION OF WORKERS IN SLUMS, 1961

Nature of Occupation	Number of workers
1. Blacksmiths, hammersmiths & forgemen (27)	323
2. Moulders & core makers (28)	144
3. Metal making & treating workers (29)	27
4. Fitters, mechinists, tool makers & machine tool fitters (31)	761
5. Mechanics - repairmen (except electrical & precision instrument repairmen) (32)	2639
6. Steel metal workers (33)	722
7. Tool makers, machinists, plumbers (other than serial numbers 31, 32 & 33) (34)	1637
8. Electricians & related electrical & electronic workers (35)	1410
9. Chemical & related process workers (42)	134
10. Stationary engine & excavating & lifting equipment operators & related workers(46)	365
11. Drivers, road transport (18)	7062
12. Inspectors, supervisors, traffic controllers & despatchers transport (19)	48
Total for 'Industrial Workers'	15272 (12.16)

Nature of occupation	Number of workers
13. Physicians, surgeons, dentists (1)	83
14. Nurses, pharmacists & other medical & health technicians(2)	712
15. Teachers (3)	931
16. Artists, writers & related workers (4)	506
17. Rest among Professional, technical & related workers (5)	501
18. Administrators, executive officials, Government (6)	163
19. Rest among Administrative, executive & managerial workers (7)	506
20. Clerical & related workers other than unskilled office workers (8)	3714
Total for 'white-collar' workers	7116 (5.67)
21. Fishermen & related workers (13)	4419
22. Loggers & other forestry workers (14)	375
23. Farm workers, animals, birds & insect rearing (14A)	921
24. Rest among Farmers, fishermen, hunters, loggers & related workers (15)	248
Total for 'Primary sector' workers	5963 (4.75)

Nature of Occupation	Number of workers
25. Labourers (General) (47)	39464 (31.43)
26. Unskilled office workers (Peons, daftries, etc) (9)	5165
27. Working proprietors, retail traders (10)	3710
28. Salesmen, shop assistants & related workers (11)	4179
29. Rest among sales workers (12)	267
30. Gardeners (malis) (14-B)	1232
31. Postmen & messengers (20)	293
32. Workers in transport & communications not elsewhere classified (21)	505
33. Rest among workers: transport & communication occupations (22)	300
34. Spinners, piecers, winders, knitters, dyers etc (23)	2913
35. Drawers & weavers (24)	1649
36. Tailors, dressmakers & garment makers (25)	2040
37. Shoe makers & shoe repairers (26)	1246
38. Jewellers, goldsmiths & silversmiths (30)	558
39. Painters & paperhangers (37)	1266
40. Carpenters, joiners, cabinet makers, coopers & related workers (36)	2745
41. Brick layers, plasterers & construction workers n.e.c. (38)	5301
42. Compositors, printers, engravers, bookbinders & related workers (39)	1345

Nature of Occupation	Number of Workers
43. Potters, kilnmen, glass & clay formers & related workers (40)	422
44. Millers, bakers, brewmasters & related food & beverage (41)	1749
45. Tobacco preparers & products makers (43)	3753
46. Craftsmen & production process workers not elsewhere classified (44)	594
47. Testers, packers, sorters & related workers (45)	397
48. Rest among craftsmen, production process workers & labourers not elsewhere classified (48)	552
49. Watchmen & chowkidars (49)	1531
50. Housekeepers, cooks, maids & related workers (50)	3564
51. Waiters, bartenders & related workers (Institutional) (51)	865
52. Building care takers, cleaners & related workers (52)	5224
53. Barbers, hairdressers, beauticians & related workers (53)	845
54. Launderers, dry cleaners & pressers (54)	1927
55. Rest among service, sport & recreation workers (55)	1087
56. Quarrymen (16)	1
57. Rest among miners, quarrymen & related workers (17)	5
58. Workers not classifiable by occupation (56)	508
Total for the 'informal sector'	57738 (45.99)

Nature of occupation	Number of workers
Total (All Workers)	125553 (100.00)

Note: 1. Figures in brackets in the column 'Number of Workers' gives column percentages.

2. Figures in brackets next to each occupational sub-category gives the number given to the category in the 1961 Census volume on Slums of Madras city.

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